THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
The Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal ESTABLISHED 1835 · THE RAILWAY RECORD.
RAILWAYS ILLUSTRATED · THE RAILWAY OFFICIAL GAZETTE

33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1
Telephone: WHItehall 9233 (12 lines) *Telegrams: "Trazette Parl, London"*

BRANCH OFFICES
GLASGOW: 87, Union Street *Central 4646*
NEWCASTLE-ON-TYNE: 21, Mosley Street *Newcastle-on-Tyne 22239*
MANCHESTER: Century House, St. Peter's Square *Central 3101*
BIRMINGHAM: 90, Hagley Road, Edgbaston *Edgbaston 2466*
LEEDS: 70, Albion Street *Leeds 27174*

Annual subscription £4 10s. 0d. post free. Single copies, Two shillings
Registered at the G.P.O. as a newspaper. Entered as second-class matter in U.S.A.

Vol. 95] FRIDAY, SEPTEMBER 28, 1951 [No. 13

CONTENTS

	PAGE
Editorial Notes	337
Winter Traffic Difficulties	339
The Day of the Specialist	341
Letters to the Editor	342
The Scrap Heap	343
Overseas Railway Affairs	344
The Pennsylvania Railroad	346
Traffic Control at Burntisland, Scottish Region	348
British Railways Standard Coaches—2	351
Personal	355
News Articles	359

Transport and the General Election

THE announcement by the Prime Minister on September 19 that a General Election would be held on October 25 ended the uncertainty as to when the Government would go to the country—a matter of speculation practically since the day in February last year when the Labour Government was returned. In the political campaign which will take place during the next few weeks there can be no doubt that the position of the nationalised industries, of which one of the most important is transport, will play a major part in the speeches of all parties. Sir David Maxwell Fyfe, in a Conservative Party political broadcast delivered on the day after the Prime Minister's announcement, touched very briefly on this subject. He used the phrase "We must free road transport from it (nationalisation)." This was a reference to suggestions which have already been made by his Party that, if it were returned to power, steps would be taken to return the road haulage industry to private ownership. It has never been clear how this would be achieved. In our view, to attempt to unscramble one part of the nationalised transport system, even if it were practicable, would remove any possibility of achieving a successful operation of the remaining parts. There is obviously need for some reorganisation in the present administration of transport in this country. The basic requirement remains as great as ever for the achievement of integration of the two major components—rail and road. To return one part to private enterprise and to leave the other shackled by State ownership and Parliamentary controls would remove any hope of attaining this. To our mind, the reorganisation required is in entirely different directions. A greater consolidation of interest between road and rail at Regional and District levels might do much to assist in bringing about co-ordination. The time surely must be approaching when it should be possible to think in terms of transport rather than of rail and road. The continued existence of six Executives under the British Transport Commission is an anomaly in view of the declared objectives of the Act. Ultimately, a stage must be reached at which the principal officer of a Region will be responsible for transport, by whatever means it is supplied.

Elimination of Executives

TWO of the Executives are already ripe for dissolution. There is no justification for the continued existence of the Hotels Executive. So far as the dining car, restaurant car, and refreshment room services of this body are concerned, they could be dealt with far better as a department of the Railway Executive, to whose ordinary operations these facilities belong. The Hotels Executive appears to be in process of divesting itself slowly of its hotel property, and it might well be that a reasonable means of dealing with these establishments would be to "hive" them off under a separate board, if a decision was taken against returning them to the railways. Similarly, the operation of docks is a reasonable part of railway business. No great difficulty either would be experienced in absorbing the powers and operations of the inland waterways side of the Docks & Inland Waterways Executive. The elimination of two Executives—there is a third, the Road Passenger Executive, which is practically dormant—would at least achieve some consolidation and result in measurable economy.

Institute of Transport President

ON October 1 the Presidency of the Institute of Transport passes from Mr. J. S. Wills, who has enjoyed a markedly successful year of office, to Mr. A. B. B. Valentine. Both the outgoing and incoming President have in common a primary transport interest in passenger movement, but whereas Mr. Wills's transport undertakings are predominantly provincial and many of them remain unconnected with State transport, Mr. Valentine is a Member of the London Transport Executive which, as the old London Passenger Transport Board, was the first major experiment in public control of transport in this country. The new President is the recognised authority on London passenger fares, a problem with which he has been connected for a good many years, as will be seen from the biographical details we give elsewhere in this issue. When the London Area Passenger Charges Scheme was submitted to the Transport Tribunal last year he was the British Transport Commission's commercial witness at the public hearings. At the conclusion of his evidence, which occupied eleven days, the President of the Tribunal complimented him on presenting so complete and comprehensive a survey of traffic in the London area. He has been a Member of the London Transport Executive since its formation at the beginning of 1948.

Railway Wages

THE willingness of the three railway trades unions to refer their claim for a 10 per cent. wage increase to the Railway Staff National Tribunal after failure last Friday to reach agreement with the Railway Executive at the Railway Staff National Council, is evidence of a conciliatory attitude. The discussion at the Council moreover is described as frank and amicable. In view of the gap between the unions' claim and the Executive offer, it is too much to hope that the Tribunal, consisting of an independent Chairman, Sir John Forster, and one nominee of either party, will be able to suggest anything more than a compromise. If this should prove unacceptable to the unions, it is not clear from the wording of the new Industrial Disputes Order No. 1376, discussed in our August 10 issue, what the next step in procedure would be. In practice, there would probably be an appeal to the Minister and possibly another Court of Inquiry—an unsatisfactory repetition of what took place last February. The tone of

the union leaders generally is more reasonable now than it was last winter, and increased appreciation of economic realities may yet result in avoidance of an acrimonious dispute.

A New Offer for the G.N.R.(I.)?

THE future of the Great Northern Railway (Ireland), although still obscure, is now nearer to a final settlement than at any time since the two Irish Governments announced a purchase price of £3,900,000 for the undertaking last January. On September 20, Lord Glenavy, Chairman of the G.N.R.(I.), and six of his fellow directors, accompanied by Mr. G. B. Howden, the General Manager, met Mr. W. V. McCleery, Northern Ireland Minister of Commerce and Mr. Sean Lemass, Minister of Industry & Commerce of the Republic, in Dublin by invitation. A formal statement issued later announced merely that "the discussions were adjourned and will be resumed in about a week's time in Belfast." This will allow the Board time to consider the position thoroughly and give an opportunity of consultation with the Committee of the Shareholders' Protection Association. It is understood that the main items under discussion dealt with an increased offer for the company and a plan for the joint operation of the undertaking. The Dublin Government newspaper, *The Irish Press*, hints that the increased offer will be between £4,000,000 and £4,500,000. As a recent statement issued by the Board, and commented on in our last week's issue, contends that the present break-up value of the company is some £12,000,000, it remains to be seen whether the new price will be acceptable or, indeed, if not, whether any other line of action is open to the Board and shareholders.

Transport Inquiry in Northern Ireland

THE Northern Ireland Transport Tribunal is holding the first sitting today, Friday, of its inquiry into public transport in Northern Ireland. As Mr. W. V. McCleery, Northern Ireland Minister of Commerce, has made clear, the inquiry is to be not merely an internal investigation of the Ulster Transport Authority. The intention is to examine the whole transport question, including the working of the Acts on which the present system is founded. Mr. McCleery has refuted criticisms that the Tribunal, a permanent body established under a section of the Transport Act (Northern Ireland), 1948, is not competent to carry out the inquiry. He thought there could be no better combination. The Chairman (Sir A. B. Babington), is not only a K.C. but also presided over the Agricultural Inquiry Committee in 1943-44, which dealt extensively with transport; another member (Mr. M. P. Sinclair) is a chartered accountant, and the other member (Mr. R. G. Manson) is a former Indian railway general manager. The tribunal can call in experts on any detailed question and it has wide powers to obtain evidence. All responsible interested parties have been asked to give evidence to enable it to present to the Government a well-considered verdict.

Ranging the Transport Field

WITH the passage of years and the constant need to provide interesting subjects for papers and discussions, organisers of sections of professional societies must find it increasingly difficult to break new ground. The Metropolitan Section of the Institute of Transport, brief details of the programme of meetings of which for the 1951/1952 season were given in our last issue, has provided a range of interesting and topical subjects. Before the end of this year Mr. G. F. Sinclair will address members on passenger transport in Athens, and Mr. W. Fraser is to speak on independent hauliers and the Transport Act, 1947; in January, Mr. A. A. Harrison deals with the complementary use of road and rail transport for freight traffic, and in the next month Mr. A. Dean, Mr. Frank Gilbert, Mr. S. G. Hearn, and Mr. A. C. B. Pickford, all of whom have visited the United States recently, are to present a symposium on railway transport in the U.S.A. and will form a "brains trust" to answer questions. In view of the impending investigation in Northern Ireland, Mr. J. A. Clarke's paper in March on the organisation and progress of the Ulster Transport Authority will attract a good deal of attention. Mr. Michael Robbins, who speaks in April on administration in transport, has chosen a subject of perennial interest.

Brassfoundry Productivity

GREATER incentive to earn more and a wider use of mechanical handling equipment in factories and workshops have generally been put forward by British teams as the main reasons for higher industrial productivity in the United States than in this country. The report of the team from the British brassfounding industry which visited the U.S.A. last year follows the same line. This report, which is summarised elsewhere in this issue, states that, though on the technical side British standards are higher, when it comes to production the output of the individual worker is greater in the U.S.A. than in British plants of similar type and size. The natural incentive of the American is to earn as much as he can, and in this ambition he is assisted by the Government and his employer as well as by his trade union. Even the smallest foundry in the U.S.A. makes use of mechanical aids and all work is carried out to a well-devised plan. Moulds are made by machine and special attention is paid to the latest conveyor systems. The report contains detailed chapters on costing and time and motion study.

Higher Technological Education

HIGHER technological education covers a wide range of subjects and there is no easy short cut in meeting the changing needs of industry. Moreover, available resources in money and buildings are limited, and therefore these must be so used as to give the best results in the shortest time. Students in technology at British universities have increased from 5,288 to 10,933 since 1939 and last year the National Advisory Council on Education for Industry & Commerce recommended increased financial assistance also for those colleges interested in advanced technology and that new courses should be developed in association with industry. These recommendations have been accepted by the Government and in a recent White Paper* the view is upheld that for its technological posts industry needs recruits of many types and differences in outlook. Technical colleges, while paying adequate attention to the fundamental sciences, should cater for students who welcome their practical outlook, and they are particularly appropriate for students who take full-time courses at university level after part-time study coupled with employment in industry. Another recommendation which has been accepted is for the establishment of a Royal College of Technology.

The Annecy Conference

ELSEWHERE in this issue some details are given of the conference on electric traction at industrial frequencies organised by the French National Railways and to be held at Annecy from October 12-15. Following on the International Electrotechnical Commission convention held in London this week (referred to in another editorial note), which discussed 50-cycles per sec. traction from the viewpoint of standards, this conference is strong evidence of the latest trend in railway electrification. Interest has been apparent in electric traction circles for some time concerning the results of the experiment of the S.N.C.F. in electrifying the Aix-les-Bains to La Roche-sur-Foron line. Not only railway operating officials but also representatives of traction manufacturers will now be able to obtain detailed information on the operation and design of the new installations and rolling stock. In commenting on the Institution of Electrical Engineers Traction Convention last year we criticised the omission from the papers of any sub-

* "Higher Technological Education." H.M. Stationery Office. Price 3d. (Cmd. 8357.)

stantial reference to 50-cycle traction. There is still no evidence that British manufacturers are fully alive to its potentialities. In view of the special suitability of 20-25,000 V. a.c. at 50 cycles for long, lightly-loaded routes, such as occur in many overseas areas in conjunction with abundant hydro-electric power, it is to be hoped that Britain will not lose important export orders because of its inability to compete in this field of traction technology.

International Timetable Conference at Oslo

NORWAY is acting as host this year to the International Timetable & Through Carriage Conference which, as we recorded last week, opened in Oslo on Wednesday and will last until October 6. Connections between Norway and its Scandinavian neighbours and the rest of Europe have recently been improved. At the conference at Amsterdam last year it was agreed to institute a through sleeping car service, operated by the Wagons-Lits Company, between Paris and Oslo during the high season—the first time that such a facility between the two capitals had been provided. The service has operated throughout this summer, the coaches working in the " Nord Express." Anglo-Norwegian services were speeded up in June by the introduction of the thrice-weekly diesel " Bergen Express," bringing the Oslo-London journey time down to 38¼ hr. In June, electric traction was inaugurated throughout between Oslo and Charlottenberg, with resulting accelerations in the Oslo-Stockholm service. These achievements thus make Oslo an appropriate meeting place for this year's conference. Among the matters of general European interest likely to be discussed are the threat of tourist air fares and the increase in international motorcoach travel.

Preparation of Traction Gear Specifications

MEETINGS of the Technical Committee on Electric Traction of the International Electrotechnical Commission were held at the British Standards Institution from September 24-25. The purpose of the conference, further reference to which is made in this issue, was to secure international agreement on specifications for rotating machinery and control equipment on electric traction vehicles. The I.E.C. specification for traction motors was last revised in 1950 and the Technical Committee has been considering an extension of the scope of this specification to include single-phase 50-cycle motors. The possibility of revising some of the tests to be applied to motors was also reviewed and preliminary consideration was given to a draft specification for the electrical transmission of diesel-electric vehicles. It is not intended that I.E.C. rules should replace national rules. It is of considerable advantage to have international agreement on as many points as possible relating to design and specifications and the I.E.C. meetings held this week have enabled users as well as designers and manufacturers to express their views.

Traffic Control Office Procedure

WHEN control offices are modernised by the installation of improved communications services, the opportunity arises for a general overhaul of procedure. There are still many supporters of recording train running by the graphical method, although the cost of the graphs is recognised as a drawback in present circumstances. The alternative method of entering particulars on printed cards may be elaborated by displaying the cards on a train board with a diagram of the lines controlled, and moving them along to show the latest reported positions of the trains concerned. Some control officers consider, however, that details of the traffic position are equally accessible to all concerned if the cards are kept in their proper order on the controllers' desks, and that pressure of work may result in failure to keep the train board display up to date. The desks designed to accommodate the modernised telephone equipment at Burntisland, Scottish Region, provide each controller with a diagram of the lines for which he is responsible, as shown in the illustrations on another page, but the scheme did not provide for a train board.

Winter Traffic Difficulties

THE introduction by the Railway Executive of the curtailed winter passenger train services on September 10, a fortnight earlier than had been originally advertised, and the announcement in the public timetables of train cancellations or alterations after October 28, the latter presumably in the nature of reductions in train services dependent on prevailing circumstances, with the object of increasing the railway manpower, locomotive, and fuel resources needed to handle goods traffic, have given rise to considerable apprehension as to the railways' ability to deal with traffic during the coming winter. Warnings have been given in recent months by principal railway officers, who have stressed the operating difficulties caused by the manpower shortage in operating and to a lesser extent in civil engineering maintenance grades, by the increase of some 6 per cent. over pre-war in the tonnages moved and by the changes in the direction of traffic flows.

The threat of a coal crisis during the winter remains, and it will be many weeks before this danger is past. Such a crisis might be caused to a limited extent by traffic difficulties on the railways in moving the coal, though increased industrial and domestic consumption combined with restricted output is likely to be a far greater factor. In its turn it would affect the railways both as coal carriers and consumers. As carriers, they would experience the difficulties they have already had in South Wales in handling the large quantities of coal which it would be necessary to import, with a layout planned for coal export. As consumers, they would doubtless be directed by the Government, as last winter, to cut down consumption, which would necessitate further curtailment of passenger services. Regarding steel and other material shortages occasioned largely by rearmament, there are as yet no indications that British Railways are directly affected, and the Government probably will ensure that the railways' requirements are met to the extent considered necessary for maintenance for strategic purposes. Against this, the capital investment necessary to maintain the railways in first class condition—as they were maintained by the railway companies before the war, even through the economic depression of the 1930's—has not been authorised by the Treasury, although the limit on such expenditure has been raised somewhat in recent months. British Railways and the other nationalised transport undertakings, as the Chairman of the British Transport Commission, Lord Hurcomb, has pointed out, are merely patching their plant, without adequate renewals. The effect of this on traffic handling is felt mainly in difficulty in dealing with the changed flows of traffic since the war, and in dealing with increased tonnages for which there is inadequate provision in sidings, depots and so on.

The main difficulties are summarised in the September *Bulletin for Industry* published by the Treasury. A brief account is given of the serious situation in respect of operating and civil engineering maintenance staff, a subject which has been discussed this summer in the July 6 and other issues of this journal. The *Bulletin* goes on to suggest that difficulties are likely to be more acute this winter than last, with an increase of some 3 per cent. in the volume of freight and fewer trained staff to deal with it; an additional difficulty in the case of coal is the probable increased movement in districts where the railway staff shortage is most pronounced. There is no reason to doubt the accuracy of the *Bulletin* traffic forecast. It is clear that even if the railway manpower situation does not deteriorate, or even improves—the British Railways staff statistics for the two most recent four-weekly periods covering June, July, and August show a slight improvement—it will be long before there are enough trained men to deal adequately with traffic offering. On the other hand, the latest freight traffic statistics of the several Regions seem to show that during the year to-date, including the coal shortage in the first quarter, traffic was moved without as much difficulty as might have been expected from the reports of local congestion and embargoes. Such movement, however, was largely at the expense (as in the matter of locomotive coal consumption) of passenger traffic.

Vitalised Wagon Returns

UNDER the heading "Vitalised Wagon Returns" an article in our July 27 issue explained the scope of the monthly commentary on the transport situation which the Association of American Railroads circulates. The bulletin dated August 20 gives a detailed analysis of wagon loadings during the first 32 weeks of the year and tells how the recent floods in the Middle West upset the supply of box wagons to the north-west grain states. In August the average daily shortage of box wagons was about 7,500. Yet, despite the floods, grain loadings exceed those of last year by 10.4 per cent. Total wagon loadings to August 11 are up 8.6 per cent.

We doubt whether one change in the contents of the August bulletin is judicious. The statement of "average turn-round time" has been discontinued because certain critics suggested that it gave no weight to fluctuations in composition of traffic, in length of haul, and in average wagon load. In its place monthly particulars of "net ton-miles per serviceable wagon per day" will be published in future. Theoretically the new statistic combines the average daily movement of serviceable wagons and the average wagon load and is considered to form the best index of wagon user.

It might have been wiser to include both sets of figures in the bulletin. The average turn-round time was given for eight different types and was a plain statement of the time which elapsed between two loaded journeys of the average wagon of each type. The information was supplied promptly and would, we imagine, be more helpful to many railwaymen and traders than a single general average statistic for all types of wagon, which will not be available until nearly two months after the wagons have been used.

During each of the first six months of 1951, "net ton-miles per serviceable wagon per day" were above the figure for the corresponding month of 1950 and 1949, but in three cases were below 1948. This shows how volume of traffic influences the statistic. Ton-mileage was high in 1948, decreased by 17.3 per cent. in 1949, improved by 11.8 per cent. in 1950, and is estimated to increase further in 1951, though it will remain well below the 1948 level. Again, an exceptionally large increase of 32 per cent. in the number of wagons loaded with ore this year will affect the statistic, as ore loads to over 60 tons a wagon and is hauled for fairly long distances. So the statistic may vary through other causes than the efficiency of the arrangements for distributing, loading, moving, and unloading wagons. In June, it stood at 1,035 compared with 1,074 in June, 1948.

Apart from the alteration which we have ventured to criticise, the August bulletin contains the usual comprehensive survey of the wagon position. It records that coal consumption in the United States to July 1 was 232 million tons, 12 million tons more than in 1950. During the first seven months of this year, 14.8 million tons of coal were exported overseas compared with 935,000 tons last year. To August 13, the tonnage of ore forwarded from Upper Lake Docks was 51 million, 11.8 million tons over last year's shipments in the same period. The demand for refrigerator wagons has been brisk this summer; one reason was that Georgia and the Carolinas produced a crop of 14.5 million bushels of peaches, over seven times the size of last year's crop. In the eastern states fruit and vegetable loadings during the summer and autumn of the year are expected to be 4.5 per cent. above 1950 forwardings.

The U.S.A. railways have a winning way of coping with such varying demands for transport, though they are no more able to secure priority for their equipment needs than are British Railways. Since July, 1950, they have aimed at adding 10,000 new wagons each month to the existing stock, but in July, owing in part to strikes in some wagon building plants and to floodwater in others, only 4,300 wagons were installed. July deliveries of 174 new locomotives were the smallest for any of the previous 12 months. All but two of the new locomotives were diesel-electric units. There are now 19 main-line railways which do not own any steam locomotives and only eleven which own no diesels. In May, diesel-electric motive power worked 52 per cent. of the gross ton-miles in freight service, 63 per cent. of the passenger train car-miles, and 67 per cent. of the yard shunting engine-hours.

While the railways are spending twice as many dollars on new equipment and other improvements to property as they did in any previous period, their new works and maintenance programmes are being hindered to some extent by Government control of steel and other essential materials. Though a campaign has been waged for a year to reduce the number of wagons waiting repair, it rose on August 1 to 5.5 per cent. of the total stock. Fortunately the railways have the co-operation of 429 Wagon Efficiency Committees of traders, which impress on senders and consignees all over the States the necessity of avoiding detention to wagons. These committees are an offshoot from the Regional Advisory Boards of traders, and their activities will assist the railways to meet the peak demand for wagons in the closing months of the year.

British Transport Commission Traffic Receipts

THE Festival of Britain, increased cheap-fare facilities, and much increased personnel movement in the fighting services probably are the cause of the increase over last year, of 4·8 per cent., in British Railways passenger receipts during the four weeks to September 9; this also has brought the aggregate passenger receipts this year very nearly to last year's aggregate for the 36 weeks. The Festival also, and the London Passenger Charges scheme probably to a lesser extent, caused London Transport railway and bus and motorcoach takings to be 17·8 and 13·6 per cent. respectively over the corresponding 1950 figures. The marked drop in tram receipts was due to abandonment of tramway routes. The increases in both British Railways and London Transport passenger receipts are the more remarkable in view of the bad weather during the period.

—	Four weeks to September 9		Incr. or decr.	Aggregate for 36 weeks		Incr. or decr.
	1951	1950		1951	1950	
British Railways—	£000	£000		£000	£000	
Passengers	10,471	9,982	+ 489	77,287	77,568	− 281
Parcels, etc., by passenger train	2,673	2,504	+ 169	22,644	20,683	+ 1,961
Merchandise & livestock	7,574	7,056	+ 518	66,635	58,883	+ 7,752
Minerals	2,766	2,495	+ 271	24,361	21,819	+ 2,542
Coal & coke	7,182	6,197	+ 985	61,379	51,626	+ 9,753
	30,666	28,234	+ 2,432	252,306	230,579	+ 21,727
Road Passenger Transport: Provincial & Scottish—						
Buses, coaches & trolleybuses	4,192	3,635	+ 557	30,396	27,028	+ 3,368
London Transport—						
Railways	1,249	1,060	+ 189	11,093	9,839	+ 1,254
Buses & coaches ...	2,737	2,409	+ 328	23,153	21,443	+ 1,710
Trolleybuses & trams ...	740	800	− 60	6,739	7,323	− 584
	4,726	4,269	+ 457	40,985	38,605	+ 2,380
Inland Waterways—						
Tolls	71	58	+ 13	595	496	+ 99
Freight charges, etc. ...	82	62	+ 20	629	586	+ 43
	153	120	+ 33	1,224	1,082	+ 142
Total	39,737	36,258	+ 3,479	324,911	297,294	+ 27,617

In the light of the 10 per cent. freight rate increase last April, the rise compared with the corresponding figure for 1951 of 10·8 for mineral and of 15·8 for coal traffic shows increased tonnages. Receipts, at £2,766,000 for minerals and £7,182,000 for coal, compare very favourably with £2,462,000 and £5,741,000 respectively for the preceding four-weekly period, though the increased coal movement was to some extent seasonal. Merchandise and livestock receipts at £7,574,000 were considerably in excess of those for the previous four weeks (£6,550,000), but were

only 7·3 per cent. over last year's figure, which shows some falling-off in traffic, largely, no doubt, of more highly-rated traffic to the roads. The increase over the preceding period is in some measure due to the incidence of the August bank holiday; but the rise in coal traffic is due mainly to increased output from the mines, and that in mineral traffic reflects increased production generally.

Inland Waterways receipts for the four-weekly period, at £153,000 were 27 per cent. above last year's, which must be considered in relation to the 10 per cent. rise in charges last April; on the other hand, they were 14 per cent. above those for the preceding four weeks, for which there is as yet no explanation.

The total receipts for the period from main carrying activities (except road haulage) of the B.T.C. were some £39·7 million, slightly less than for the previous period (£40·3 million) but 9·5 per cent, over last year's figures, for which increased railway passenger and coal traffic, and the rise in freight charges last April, are mainly responsible.

PERCENTAGE VARIATION 1951 COMPARED WITH 1950

	4 weeks to Sept. 9	36 weeks to Sept. 9
British Railways—		
Passengers	+ 4·8	− 0·3
Parcels	+ 6·7	+ 9·4
Merchandise & livestock	+ 7·3	+13·1
Minerals	+10·8	+11·6
Coal & coke	+15·8	+18·8
Total	+ 8·6	+ 9·4
Road Passenger Transport	+15·3	+12·4
London Transport—		
Railways	+17·8	+12·7
Buses & coaches	+13·6	+ 7·9
Trolleybuses & trams	− 7·5	− 7·9
Total	+10·7	+ 6·1
Inland Waterways	+27·5	+13·1
Aggregate	+ 9·5	+ 9·2

Traction Possibilities in South Africa

WHEN he opened recently a new electrified section in the Witwatersrand, Mr. D. H. C. du Plessis, Acting Assistant General Manager (Technical), South African Railways, made some observations on diesel-electric traction, which in his view is unsuitable for South Africa. His remarks are of special interest in view of a controversy which has followed the decision of the administration to extend electrification on some lines and retain steam traction elsewhere. In 1946, Mr. du Plessis headed a mission from the S.A.R. to Europe and North and South America to study the latest railway developments and trends, in particular diesel-electric and gas-turbine traction.

He said that the gas-turbine locomotive had not reached the stage of perfection where it could become a serious competitor of the steam locomotive in South Africa. The Union has no indigenous oil; this alone rules out the general introduction of diesel traction. On the other hand it has unlimited coal resources; locomotive coal is relatively low in cost, making the operation of steam locomotives cheaper in South Africa than anywhere else in the world.

In America, construction of diesel locomotives is largely undertaken in the workshops of private builders, but in South Africa their introduction would necessitate large numbers of specially trained staff and new workshop facilities at great cost. The South African Railways workshops produce all the parts needed to maintain steam locomotives; with dieselisation, spares in large quantities would have to be imported from America.

Nevertheless, although for these reasons diesel traction is unattractive, the South African Railways are keenly alive to other developments in motive power. Mr. du Plessis referred to the experimental equipment of a locomotive with condensing apparatus (described in our March 30 issue), which resulted from the visit of the mission to Argentina, where such a type of locomotive has been in use for some years. Condensing locomotives would be of great value in the Karoo and in South-West Africa, with their difficult water problems.

The pulverised-coal-turbine locomotive offers possibilities for South Africa, again particularly in regions where water is short, and the trials which the Victorian Railways are carrying out are doubtless being studied with interest in South Africa.

The Day of the Specialist

(By a Correspondent)

THE Railway Executive has given its reasons for centralising its organisation, and it is no part of the purpose of these notes to question either the policy or its implementation. It has also been stated that the present organisation is not necessarily permanent, and to the extent that it may change, the inferences drawn in these notes may be invalidated by events, although it is permissible to doubt whether, with the best will in the world, any serious measures of decentralisation will be possible so long as the Executive has to deal with three so highly centralised trade unions.

One of the results of centralisation has been to bring together at the Executive a volume of work which the individual members can handle only through the medium of a team of specialists. Specialisation was not unknown on the railways before nationalisation, but the present degree of specialisation at such a high level represents a new factor in railway management.

Specialisation of this kind cannot be confined to the centre, especially within the functional organisation adopted by the Executive for the more rapid promotion of standardisation. It reaches out into the Regions, where the only way to cope with the demands imposed by the specialist sub-departments at the centre is to create specialist posts on the same lines. Nor does the process end there; it is only natural that those in charge of specialist departments, anxious to maintain efficiency, will look for staff with the appropriate specialist training, and the point is soon reached where it is possible to look outside a specialist department for recruits only at the price of some injustice to staff who have specialised and look for promotion within it.

Moreover, specialist posts have a particular attraction in these days of great difficulty and expense in moving house. Once established in a regional office, a specialist has before him a clear line of advancement, without removal unless his regional office is outside London, to an Executive post which is as high as the average officer hopes or expects to get before retirement.

As specialisation grows, practically the only field, apart from the comparatively few posts at the head of departments in the Regions, left open to non-specialists would appear to lie in the districts. Even this field, however, may be limited in two ways. In the first place it is unlikely that the transfer of district officers from department to department, encouraged by some of the main-line companies, will be permitted; this, although it may give rise to some hardship until the supply of officers trained by such companies is exhausted, will not reduce the number of posts available in total to non-specialists. In the second place, where the grading of specialist posts in the Regions falls between those of district officers and their assistants, some of these specialists may have to look to the districts for their only chance of promotion, seeing that not all of them can succeed in rising to the senior specialist posts at Executive level. Specialisation will therefore hold the further attraction that it provides a double chance either of a specialist career throughout, or of acquiring as a specialist the necessary seniority to qualify for a District.

All the signs, in fact, seem to point to an increasing demand for specialists, and an increase in the number of men who will choose to specialise, not merely in a department, but in a sub-department of a department, from an early stage in their careers.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Withdrawal of Branch-Line Services

September 11

SIR,—Saturday, September 8, has seen the withdrawal of passenger services on a number of branch lines, mainly in the Scottish Region. The reasons for their demise are obvious—infrequent service, poor connections and uneconomical motive power. A good example was the Selkirk branch; latterly the service consisted of one train each way connecting with nothing worthwhile, and the branch train sometimes consisted of a Scott 4-4-0 and a couple of coaches. Other examples of uneconomic motive power were the use of a Class 4 2-6-0 on the Essendine to Bourne branch and a Compound or a "Dunalastair" on the Wilsontown branch. The passenger service on all three of these branches has been withdrawn, needless to say.

On the Scottish Region branch lines that remain little attempt appears to be made to retain what little traffic that remains. At one junction in Southern Scotland recently passengers from London alighted to find that the branch train had not been held for them and they were directed to the bus. This would have been almost unheard of on the line that really did know how to run branch lines, former Great Western. Although quite a few former Great Western branch lines are under consideration for closure it retains a greater number of branch lines than any other Region, due mainly to the use of economical branch units.

Yours truly,

J. F. BURRELL

80, Longmead Avenue, Bristol, 7

Winter Train Services

September 14

SIR,—Will you allow me to make a few comments on the winter timetables of British Railways, or rather on such of them as have yet become available to the general public, nearly a week after the commencement of the new train services ?

There is still little or no sign of any attempt to woo the travelling public back to travel by train. For instance, there is no attempt to run fast light express trains and express diesel railcars twice a day (morning and evening) between centres of population on cross-country routes, as is done in all countries of Western Europe and even on the railways of Algeria, Tunisia, and Sicily.

There is no sign of recognition by the Railway Executive that there may be quite a heavy potential traffic between the big centres of population in the West of England, such as Plymouth and Bristol, and Edinburgh and Glasgow, including all towns north of Liverpool and Manchester. Passengers can, of course, always travel an extra hundred miles or so round by London, with all the inconvenience and expense of crossing London to another terminus; or they can change trains (when timed to connect) at Crewe or Sheffield or York; though some trains (like the noon from Penzance to Manchester) are still cleverly timed just to miss connection at Crewe with the principal sleeping car expresses to Scotland. So, of course, we (the general public) use motorcars and motorcoaches, when possible; and the Transport Commission wails about "consumer-resistance" and falling passenger traffic.

Branch lines are still being closed for economy reasons all over the country; but hardly ever is anything done to include in the public timetables the names of the stations closed, with a co-ordinated table showing the times of the principal bus services which have replaced (so it is said) the trains; this is widely done in the official timetable, *Indicateur Chaix*, of the French Railways. Well may a family exiled in Bristol, and desirous of visiting their old homes in Alford or Auchtamuchty, wonder what special benefit nationalisation has been to them ! No doubt Fortrose will soon join the long list of towns and villages that no longer figure in the railway timetables.

May I suggest that the whole of the members of the Transport Commission and the Railway Executive are totally destitute of imagination and human sympathy for their customers ? If they are tired and dispirited, they should take a long (a very long !) rest, and hand over their jobs to others, who will try other and better methods to resuscitate our railways, which were once the finest in the world.

Yours faithfully,

MICHAEL PETO

Dundonnel House, By Garve,
Wester Ross, Scotland

Suggested New Layout at Southport

September 19

SIR,—In view of the pending closure of the former Cheshire Lines route from Liverpool Central to Southport it is possible that the Railway Executive might make additional savings and, at the same time, give greater convenience to the public by carrying out the suggestion outlined below.

A physical connection should be made between the electric line from Liverpool Exchange and the Cheshire Lines south of Ainsdale Station and all electric trains run into Lord Street Station. The electric line between Ainsdale and Chapel Street Stations should be closed and most of its length turned into a highway.

This would eliminate several signalboxes and level crossings, all an expense to the Railway Executive and a nuisance to the public. The suggested route would be just as convenient for the majority of travellers, and Lord Street Station is a far more pleasant place than Chapel Street. Travellers from other parts passing through Southport for Liverpool could be routed *via* Burscough Junction or conveyed by bus between Chapel Street and Lord Street Stations—only five minutes apart. There is ample accommodation for stabling and servicing trains outside Lord Street Station.

Yours faithfully,

G. RICHARD PARKES

Montcroft, School Lane, Formby

Railway Closings

September 20

SIR,—My attention has been called by the Chairman of the Railway Executive to a statement in our recent pamphlet "State Monopoly" that "British Railways are to close down the Isle of Wight railways." Mr. Elliot tells me that this in fact is not the case as so far the matter has not gone beyond the investigation stage.

From the point of view of the pamphlet's argument, I must confess I see little difference between contemplation and action, but if our incorrect statement has caused any pain to the Chairman and Members of the Railway Executive, I unhesitatingly withdraw it and apologise.

Yours faithfully,

ROGER W. SEWILL
Director

Aims of Industry Limited,
12, Carteret Street, S.W.1

B.E.A. FINANCIAL LOSS.—Despite the traffic record of the British European Airways Corporation for July, when 144,331 passengers and 951 tons of freight were carried at a profit of £103,011, a loss of £19,887 was shown during the first four months of the financial year. This compares with a profit of £6,969 over the same period last year. Mr. Peter Masefield, Chief Executive of B.E.A. says that but for the payment of £90,000 in fuel tax on internal services there would have been a profit of £70,000.

THE SCRAP HEAP

Modern is Ancient

Murals, about 800 years old, uncovered near Shoreham have the same design as British Railways upholstery.—*From the "Evening Standard."*

Footplate Preferred

When a witness at a county court said he was an engine driver, the judge replied: "You have achieved the ambition most boys have; I had it, but never achieved it."

Witness: "I'd rather drive an engine than have your job."—*From the "Daily Mail."*

Quicker by Cycle

A train, without passengers or crew but with steam up, was standing in Caveux Station, near Amiens. A boy of twelve climbed on the footplate and manipulated the controls. The engine started. The boy jumped clear. A railwayman chased the train on his bicycle for ten kilometres—and caught and stopped it at the top of a hill.—*From "The Manchester Guardian."*

A Signal in the Street

A railway signal in the street at first sight may seem as out of place as would a lighthouse in one's garden, but this signal at Pheasant Street, Worcester, where the railway from a private siding crosses the road, protects both railway and road users.

Road-rail signal at Worcester

The signal has two enamelled arms for controlling trains, while two wooden arms, which are normally on the "off" position, are exhibited to road users.

When a train is about to cross the street, a key is obtained from the groundman's hut in the yard, which when inserted in the lock allows the road signals to be restored to "danger." At the same time another key is released, by use of which either of the railway signals may be released.—*From "British Railways Magazine."*

Locomotive Adoption

Two railway lovers offered to adopt a dirty express engine they saw puffing into Snow Hill Station, Birmingham. They wrote to the Railway Executive volunteering to clean and polish the engine, and others at Tyseley sheds—"just for the love of it."

But after correspondence the offer has been turned down. They said, "We are disappointed. Twelve other club members offered to help us. We know the railways are short of cleaners, and we would love to polish up the engines. It is our hobby. To us a dirty engine is a crime. To the British Railways it is a bad advertisement."

The engine they wanted to adopt was No. 4959, named *Purley Hall.* Mr. Christopher Rice, District Motive Power Superintendent, said: "There are legal difficulties of accident compensation that cannot be overcome. There might also be trouble from the unions."—*From the "Daily Express."*

Talyllyn Railway Society

The Talyllyn Railway, Merionethshire, may be only 7 miles long, but it certainly rejoices in the most comprehensive of any descriptions among railways of today. It has been described as "the oldest running steam-hauled passenger carrying narrow-gauge line in the world." It can also be mentioned that it is still privately owned and can report a successful year. The season just ended was the first in which it has operated under the Society formed to preserve it and it has been possible to cover running expenses and also the special expenditure necessary for equipment on restarting the line. The Talyllyn Railway Preservation Society now has a membership of 650.

Stimulating Posters

The enlightened policy of London Transport towards contemporary British art must be a source of pleasure to many who admire the works of many British painters of today. London Transport posters for a number of years have put before the public pictures by some of our leading artists, but I wonder if any of them have stimulated as much interest and discussion as the recent one of "London's Flowers" by Ivon Hitchens.

On four occasions during the past few weeks I have witnessed, apart from the dozens who have studied the poster with more than usual interest, people who would never in the ordinary way visit exhibitions of contemporary art, attacking, defending, criticising, and commenting on this picture. The gist of one comment by a rush-hour traveller was that he had never seen anything less like flowers look more like flowers.—*From a letter to "The Times."*

"Warm, warm . . . ."

[Reproduced by permission of the proprietors of "Punch"

On Stopping Trains

Having just read about a woman fined for pulling a communication cord without adequate excuse (she merely thought that she did not want to go to Dover), one returns to the fancies that most of us have had about stopping trains.

In England, there is an unwritten law that nothing short of a lunatic or bandit is worth risking a fuss about; in Scotland, even ruffians often meet their match among meek-looking members of the population.

Glasgow Station staff remember a blue-eyed old lady in a jet bonnet who stepped from a shambles of a carriage in which a trampish individual lay bleeding.

"He wanted my handbag," said the victor primly, "so I let him have my umbrella." — *From "An Editorial Diary" in "The Glasgow Herald."*

Angry Second Class

In the diesel train operating on the U.T.A. Bangor line there are only first and third class coaches . . . This has caused angry discussions among second class season ticket holders and especially those with long-term contracts.

I have often wondered why the English railways, when they dropped their second class coaches, did not instead drop the term "third class" and turn their third class coaches into "second class." It seems anomalous to have a first and third class when there is no second class, and is it good psychology?—*"The Roamer" in the "Belfast News-Letter."*

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

RHODESIA

American Investigation Team

A team of American railway consultants, which will investigate projects for increasing the rail facilities between Southern Rhodesia and East Coast ports, has arrived in the Colony. The team was engaged jointly by the Governments of Southern Rhodesia and Portugal, and consists of Mr. G. A. Amberg (economist), Mr. Englebright (railway operating engineer), Professor William W. Hay (railway construction engineer) and Mr. Thomas H. Healy (railway business consultant).

BURMA

Gokteik Viaduct Restored

The most important event during August was the successful completion of the rebuilding of the Gokteik Viaduct in the Northern Shan States. It was reopened to traffic on August 15, and direct rail communication up to Lashio re-established.

Restoring Main Line

Work has already begun in clearing the insurgents from the area between mile 227 and 245/17 on the main line and the restoration of track from both sides is progressing satisfactorily. Through running to Mandalay is expected to be established in the near future.

TASMANIA

New Rolling Stock May Cut Losses

The General Manager of Railways has stated that the new rolling stock coming into service will do much to restore the railways, which are carrying more passengers on the main line than are being carried by road. He felt that the new rolling stock had stimulated the desire of the employees to co-operate in modernising the system.

Co-ordination of transport is a problem in Tasmania, but it is considered that the railways will continue to give valuable service to the State for years. A recent Parliamentary inquiry showed that many railway passenger services paid running costs and contributed towards overhead. One of the main financial problems of the railways is, however, the low subsidised freight rates on certain goods.

CANADA

Hudson Bay Railway

The Hudson Bay Railway has now become an operating division of the Canadian National Railways, which hitherto have operated it for the Government. The new division will comprise all C.N.R. lines north of the town of Hudson Bay, including Flin Flon, Sherridon and the present Hudson Bay Railway. In former years, a temporary staff of despatchers has handled each year's grain movement to Churchill. Under the new arrangement there will be a permanent dispatching staff established at The Pas.

Prince Rupert Service

The service between Jasper (Alberta) and Prince Rupert (British Columbia) has been increased from tri-weekly to six days a week. The new service connects at Jasper with transcontinental trains from Montreal and Toronto to Vancouver, and with the eastbound "Continental Limited." The decision to double the frequency of service over the line is the result of the great increase in industrial developments along the route and the expected further growth of traffic in the territory.

UNITED STATES

Automatic Machines on Trains

Five machines, specially designed for use on trains and each dispensing different items of food and drink, have been installed in a coach now in daily use in the New York-Washington service of the Pennsylvania Railroad. The new service will be in addition to regular dining car service, and the car will be used experimentally for a 30-day trial period on a number of leading daytime trains.

The purpose of the experiment, as stated by the manager of the P.RR. dining car service, is to find out whether travellers were in favour of a "choice of good things to eat and drink dispensed by automatic machines at any time during their trip." A typical daily menu consists of fruit juice; beef, ham, and cheese sandwiches; doughnuts; Danish-type pastry; chocolate cake; ice cream; milk; chocolate; coffee and assorted sweets. The machines, which are serviced at station stops, are in a conveniently placed coach, and signs at the end of each coach direct patrons to them.

ARGENTINA

Reorganisation

Pending the final outcome of the reorganisation and new order of the Ministry of Transport the functions of the Railway Directorate have been vested in the Minister or, on his designation as agents, the technical and administrative sub-secretaries or the railway general managers. The members of the original Railway Directorate either resigned or were dismissed last January.

To ensure normal working of services which had been disrupted at the beginning of August by the non-co-operative attitude adopted by some groups of the railwaymen's unions, the President of the Board of General Managers, Dr. Miguel Revestido (General Manager of the Belgrano Railway) has been authorised to co-ordinate the transport operations, including interchange of personnel of the entire national railway system. For this purpose the General Belgrano, General San Martin, General Mitre, General Roca, General Urquiza, Domingo Faustino Sarmiento, and Patagonico Railways, will be considered as a single unit. The railways will maintain their individual administration and denomination for the purpose of expenditure and revenue control.

The President of the Board of General Managers is also authorised to intervene in the administration of any railway when such action is deemed necessary by the Ministry. This ruling, decided on August 9, was immediately given effect to when the administration of the General Roca Railway was intervened.

Diesel Services

Further to the reference in our July 6 issue, we are informed that the Ganz diesel units which originally operated between Patagones and San Carlos de Bariloche, later between Buenos Aires and Bahia Blanca, and latterly on the Necochea line are not out of service. One of the trains is running on Tuesdays and Thursdays between Buenos Aires and Mar del Plata, one return journey a day, and Saturdays from Buenos Aires to Necochea, returning on Sundays from Necochea to Buenos Aires.

The other set was derailed some time ago, as a result, it is believed, of an irregularity in the track. Despite the speed at which it was travelling, there were no serious injuries, doubtless due to the strength of the box-type welded construction.

Once Station Renamed

Once Station, the former headquarters of the Buenos Ayres Western Railway, now the D.F. Sarmiento Railway, has been renamed Primero de Marzo to commemorate the date (March 1, 1948) when the former British-owned railways were taken over by the State.

FRANCE

New Box at Monrepos Junctions

A new signalbox, in which all operating handles are at all times free, was brought into use at Monrepos, on the Paris-Bordeaux line at the same time as automatic colour-light signalling between Bassens and Bordeaux.

The small panel has a number of route-setting buttons, with the indications on an illuminated diagram of strip type; it controls at Monrepos itself, the junctions leading to Saintes, Eymet, and Bordeaux-Deschamps; and at Captaou, by means of a remotely-

controlled set of apparatus, the junction leading to Bordeaux-Bastide.

The new box has 21 working operating buttons for 15 routes, for permissions to outlying locations, and two for setting up "non-stick" through working. The working is thus made concentrated and convenient, and combines with that feature automatic cancellation and pre-setting of routes. The installation has enabled two mechanical signalboxes to be abolished, both at Monrepos and Captaou.

DENMARK

Slangerup Line Improvements

The Slangerup line has its terminus in Copenhagen some three miles from the centre of the city, necessitating transfer by most of its passengers to tram services to complete their journey. This is the more unfortunate as the line runs through districts with a growing suburban population and also through country much frequented on holidays.

The line was taken over by the State Railways in 1948 and improvements to the track and rolling stock were carried out, but without increase in the traffic. A committee has recommended that the line shall eventually be carried through the centre of the city in tunnel, but in view of the cost it is not likely that this scheme will be carried out for 10-15 years.

Certain immediate improvements are to be carried out. Steam locomotives will be replaced by diesel cars, and more trains will be run, so that during rush hours there will be a regular half-hour service on the suburban part of the line. If a 20-min. service were provided, it would be necessary to double some sections. One of the tramway routes is prolonged to a point adjoining the platform.

From October 1, a new rate for monthly tickets will be introduced for both railway and tramway travel. It will mean a reduction of 20 to 25 per cent. of the present railway and tram fares combined. It is hoped that these proposals, which will be carried out this autumn will lead to a considerable increase in traffic.

WESTERN GERMANY

Increases in Rates and Fares

The Federal Cabinet has agreed to increases in the passenger and goods tariffs of the Federal Railways. Passenger fares are to be increased by 15 per cent. The increases which still require the approval of the Federal Parliament, are expected to provide an additional DM. 627,000,000, which is required to meet a deficit in the next Budget.

Express goods rates will be increased by 25 per cent. Rates for smalls will be graduated according to weight and rates will be increased by 20-25 per cent. Rates for full wagon loads will be increased by up to 20 per cent. according to classification of load.

The present holiday tickets will be replaced by a common return ticket available for all distances. It is intended to have a validity of four days for the outward and homeward journeys for distances up to 100 km. Return tickets for any distance over 100 km. are intended to be available for one month. The new arrangement will result in slight increases in fares for short journeys, but considerable reductions on long-distance journeys. For a distance of 500 km. the double journey now costs DM. 60, but with the new return ticket, it will be reduced to DM. 56.

Supplements for semi-fast, fast, and express trains will be the same for all three classes, and will be the present third class supplement for the class of train concerned. Sunday day tickets, on which a reduction of 33⅓ per cent. is granted, will still be issued. The only difference will be that fares will be calculated by zones instead of by kilometres.

It is expected that over DM. 500,000,000 will be earned from the increases in goods rates; passenger fare increases are expected to provide another DM. 77,000,000. It is hoped to raise the remaining DM. 50,000,000 through increases in traffic.

NETHERLANDS

Remodelling at Rotterdam

In spite of financial difficulties the reconstruction works in the Rotterdam area are to proceed, and a detailed programme has been worked out for the next three years. The works include the completion of a new line, Nieuwerkerk-Rotterdam D.P., which will eventually permit the closing of the Maas terminus. The short-term programme also includes the construction of a new smalls goods shed and the reconstruction of the D.P. station itself is planned to take place in continuation of this programme, after 1953.

Publications Received

Crucible Furnaces.—An illustrated leaflet containing design details and giving the capacities of type LO crucible furnaces has been issued recently by the Morgan Crucible Co. Ltd. Supplied in four sizes, these furnaces are suitable for melting non-ferrous metals or cast iron, and are gas or oil fired. An illustration diagram is given and also a table showing melting time and oil or gas consumption.

Rapier Mobile Cranes.—An illustrated leaflet which describes the Rapier 5 Super mobile crane fitted with a petrol-electric or diesel-electric prime mover has been published by Ransomes & Rapier Limited. In addition to a general description there has been included a diagram giving the lifting capacity of the crane relative to the jib height. The crane can be supplied with pneumatic or solid tyres.

Rails and Accessories.—An illustrated booklet dealing with rails and rail accessories, and compiled primarily for the use of owners of private sidings, whose requirements need not be to the exacting standards obtaining on main-lines, has been published by Thos. W. Ward Limited. The booklet has illustrations of crossings and turnouts, dimensional diagrams of standard and special pattern crossing, check, keel and side chairs, and so on, for B.H. and F.B. rails. Also included are dimensional drawings of rail and chair fastenings, lever boxes, buffer stops, and re-railing ramps, together with tables of principal dimensions.

Holman Drifters and Rock Drills.—An illustrated catalogue (E2) has been issued by Holman Bros. Ltd. containing particulars of a range of drifters for wet or dry rock drilling. Included is a table showing the capacity of each machine, with the main dimensions and weight of each, and with references to hand or rotofeed types. Design details are given as well as the principal dimensions of steel cradles for each type of machine.

Blick Watchman Control System.—A leaflet describing the Blick watchman control system has been published by Blick Time Recorders Limited. Consisting of an 8-day clock and calibrated tape marked in portions of an hour the equipment is capable of recording up to 78 different patrol points. The leaflet is illustrated with a suggested patrol system which provides for inspection at irregular intervals.

Spanner for Railway Chairs.—Features of the VV type of spanner designed for use with railway chair screws are given in an illustrated leaflet published by the Kenitra Co. Ltd. A drawing of the spanner is included.

Argonarc Welding Accessory.—Details of a water-cooled shield, an accessory to the Argonarc Mark III torch which permits constant use of current up to 350 amp., are described and illustrated in a leaflet issued by the British Oxygen Co. Ltd. Included is a diagram showing the method of assembly and a list of components.

Dust Collecting Units.—Salient features of the W1100 wet type unit for the collection of dust from industrial processes are given in a booklet by Keith Blackman Limited. Diagrams show the principal dimensions. Working instructions and performance curves are given as well as installation proposals in relation to the diameters of grinding wheels and periphery speeds.

The Pennsylvania Railroad

A review of financial and operating results

(By a Correspondent)

NO longer does the Pennsylvania Railroad dominate the American transport scene as it used to do, but it is still the largest railway in the United States. Its 10,000 miles of road, comprising 25,000 miles of track, stretch from a base line through New York, Philadelphia, and Washington westward to Chicago, Peoria, and St. Louis; northward to Buffalo, Cleveland, Detroit, and other shipping places on the Great Lakes; and southward to Cincinnati and Louisville on the Ohio River. The whole of this territory is fully developed and served by many competing lines. At the little-known town of Peoria in Illinois 14 railways exchange traffic. Last year the Pennsylvania handled 5,809,000 wagons of revenue freight. Only 3,380,000, or 58 per cent., were loaded on its own line; the remaining 2,429,000 were from connections.

The Pennsylvania works nearly 10 per cent. of all U.S.A. rail traffic. It owns 10 per cent. of the total locomotive power in the States, 11 per cent. of the freight wagons, and 17 per cent. of the passenger train cars. In 1950 it hauled 207 million tons of revenue freight for an average distance of 241 miles. Revenue ton-miles at 49,887 million were twice the number produced by British Railways from nearly twice the mileage of road. Measured by net ton-miles per mile of road the density of the Pennsylvania traffic exceeded that of any comparable railway. With a train load of 1,484 tons, travelling at an average speed of 14·8 m.p.h., 21,245 net ton-miles were worked in the average train-hour.

Passenger Traffic

Last year the Pennsylvania ran passenger trains over only 5,620 miles of road and cut the 1949 train-mileage by 7·6 per cent. to 37,165,000. Among the major U.S.A. railways, it is singular in working more passenger than freight train-miles, though these increased by 4 per cent. to 35,071,000. It carried 75,192,000 passengers, a decrease of 11,704,000, or 13 per cent. The average journey covered 58 miles and the average train speed was 43·8 m.p.h. The only railway to run faster passenger trains was the Union Pacific, which works in a different environment beyond the Mississippi, carrying 2,191,000 people on journeys averaging 651 miles at 46 m.p.h.

Under the impulse of the Korean war and defence programmes, more passengers are being booked this year, but for the six months to June, passenger earnings constituted only 8·5 per cent. of the total operating revenues of all U.S.A. railways. For the Pennsylvania the percentage was 14·7, showing an unusually large share of passenger business.

The financial results of dealing with the Pennsylvania's massive traffic are most disappointing. The board prides itself on having paid a cash return to its stockholders in every year since 1847. From 1900 to 1931 the normal rate of dividend was 6 per cent. and for the last five years of that period the average payment was 7¼ per cent. In 1932 the rate fell violently to 1 per cent. and, though restored to 5 per cent. in the war years, reverted to 1 per cent. in 1947. A dividend of 1½ per cent. was paid in 1949 and charged to "Profit and Loss." Last year a dividend of 2 per cent. was actually earned, a balance of $18 million being transferred to the credit of "Profit and Loss."

The current financial position is precarious. In May, Mr. W. S. Franklin, President, told the Interstate Commerce Commission that, unless the 15 per cent. increase in freight rates sought by the railways were granted, the Pennsylvania might have to slow down its equipment programmes. Net railway operating income is insufficient to support essential capital investments as well as meeting appropriations to various funds and providing a scanty dividend. In 1950 the operating ratio was 84·4 per cent. The annual report said every effort was being made to reduce it, but during the first half of 1951 the ratio rose to 87·6 per cent. While revenue was 22·6 per cent. larger, expenses were up 25·2 per cent. and the Pennsylvania was left with an operating income of $20·7 million.

The inadequacy of the operating income for the upkeep and development of such an extensive railway property is evident from Table I below, which gives comparative figures for the Santa Fe and Southern Pacific—two enterprising and prosperous systems in the Central Western Region.

TABLE I—REVENUE AND EXPENSES FOR SIX MONTHS TO JUNE, 1951
(Millions)

—	P.RR.	Santa Fe	Southern Pacific
Miles of road operated	10,127	13,096	12,432
Operating revenues ...	$504	$277	$317
,, expenses ...	$442	$206	$244
,, ratio (per cent.)	87·6	74·3	76·9
Net railway operating income	$20·7	$29·0	$23·8

In addition to the Santa Fe and the Southern Pacific, the Chesapeake & Ohio, with only 5,116 miles of road, enjoyed an operating income higher than the Pennsylvania by nearly $1 million. The C. & O. had the low operating ratio of 73·2 per cent. The Norfolk & Western, another coal road of 2,135 miles, kept expenses down to 70·3 per cent. of revenue, and so built up an operating income of $14 million to the profit of the Pennsylvania which holds a substantial block of its stock.

At December, 1950, the Pennsylvania had invested $3,009 million in road and equipment property. That amount is about 10 per cent. of the property investment of all Class 1 railways, an extraordinary burden for one system to carry. During the past 20 years, $518 million have been spent on P.RR. property, and yet there seems no end to capital expenditure.

The latest project is the building of an ore unloading pier at Greenwich Point, Philadelphia, where the Pennsylvania has a coal shipping place on the Delaware River. Nearly two years will be needed to instal appliances designed to transfer 2,400 tons of ore an hour from ship to wagon. Operating conditions will be "ideally efficient," because hopper wagons discharged at the coal pier will be reloaded with ore, instead of being hauled back empty to mines which are near the blast furnaces. Stockholders are assured that the railway company will own "one of the largest tidewater ore unloading facilities in the country"; they are not told what return is expected to be earned on the estimated cost of $8 million.

Electrification

The Pennsylvania would not seem to have profited greatly from its expenditure on electrifying its busiest lines east of Harrisburg, and has still to find capital to keep the equipment up to date. Delivery is expected this year of four electric locomotives designed exclusively for freight service and worth nearly $3 million. In 1946 the board decided not to extend the electrified lines west of Harrisburg, but, instead, adopted a programme for installing over 1,000 diesel-electric locomotives at a cost of $228·5 million, including $19 million for supporting facilities. When the programme is completed this year, 83 per cent. of the passenger car-miles and 56 per cent. of the freight gross ton-miles will be operated by electric or diesel-electric power.

The Pennsylvania began this year with a stock of 267 electric locomotives, 847 diesel-electrics, and 2,292 steam engines. By December next the stock of steam engines may be reduced appreciably, but the maintenance of three different types of motive power will remain a handicap for an indefinite period. The company spent $64·7 million on locomotive repairs last year. That was $11·8 million more than the 1949 expenditure, but the percentage of stock under repair was brought down from 19 to 14 on December 31.

In 1949 the wagon stock was allowed to get into a poor state, at least 20 per cent. being under or awaiting repair at the end of the year. By December last, this percentage was reduced to 12·3, the total expenditure on wagon repairs in 1950 being $80·6 million, an increase of $31·8 million on 1949. Dur-

ing 1950 the company ordered 20,000 new wagons over and above 6,600 to be built in its own shops. This wagon building programme will cost $151·6 million in all. Such heavy outpayments cannot be avoided, for today the old saying that the economy of the U.S.A. is built round the railway freight wagon still holds good. The Pennsylvania had to strengthen its stock of 181,500 wagons to cope with extra traffic for defence and end the shortages which caused a public outcry last year.

Passenger Services

The commercial case for lavish expenditure on passenger services is not so clear. The Pennsylvania owns a stock of 6,300 passenger train vehicles, of which some 3,500 convey passengers. Last year, repairs to this stock cost $28 million. The board further decided to buy 64 new cars for two crack trains, "The Congressional" plying between New York and Washington and "The Senator" between Boston and Washington. These cars are intended to "represent the last word in the art of coach building." They will form part of a passenger car building programme, comprising 450 units, which has cost $47 million already and will absorb another $10 million before it is completed. In addition, 378 units of existing stock are being renovated.

The annual report states that "the travelling public has responded favourably to the new and renovated equipment" put into service, notwithstanding that in 1950 the company incurred a deficit of nearly $49 million in passenger service operations. Much of this loss arose from the handling of season ticket travel, express, and mail, but admittedly some passenger train-mileage is unprofitable and an average of 2,600 miles per day was cancelled last year.

For some time the Pennsylvania accident record has not been good, though no company has experimented more persistently with safety and signal appliances. Last year the board decided to instal, in areas of dense passenger service, an electronically operated speed-control system which automatically applies the air brake in the event of human failure. The annual report did not give an estimate of the cost, but it must be high, and will swell the property investment account without increasing revenue.

The Outlook

At present there is no room for optimism about prospects. On August 8 the Interstate Commerce Commission rejected the application for an increase of 15 per cent. in freight rates, which evidence submitted on behalf of the railways appeared to justify fully. Instead, the Commission awarded the eastern railways a nominal increase of 9 per cent., including the interim advance of 4 per cent. granted in March. The actual increase will be only 7·5 per cent. owing to "hold-downs" and exceptions. Further, the increases in rates are not to be integrated with the existing or basic rates; they are surcharges, or revenue increases, to be added to the total freight charges, and authority to impose them expires on February 28, 1953.

The President of the Pennsylvania Railroad lost no time in expressing disappointment with the award, protesting that the railways should have been allowed to raise their prices to meet the growing cost of labour and materials in the same way as other industries do. Clearly a larger permanent increase in rates will be required to adjust the inadequate rate of return which the Pennsylvania, in common with other eastern lines like the New York Central, has earned on property investment since the war. Table 2 below shows how the lapse of 21 years has brought about a startling change in the relative positions of the Pennsylvania and the U.S.A. railways as a whole, when measured by ratio of net railway operating income to net property investment.

TABLE 2—PENNSYLVANIA RAILROAD
(Millions)

—	1929	1950	Increase or decrease, per cent.
Property investment ...	$2,404	$3,009	+25
Net railway operating income	$135	$58	−57
Rate of return, per cent.	5·6	1·9	−65
All U.S.A. Class I Railways			
Property investment ...	$23,868	$24,631	+ 3
Net railway operating income	$1,252	$1,040	−17
Rate of return, per cent.	5·24	4·22	−19

It is difficult to resist the feeling that since 1929 the Pennsylvania has overspent capital on schemes which have failed to produce an adequate return. If all its projects had fructified, the company's wealth would have grown in step with the volume and density of its traffic as it did in the first 30 years of this century. The original impetus to the expansion of the Pennsylvania was given by Mr. A. J. Cassatt, President from 1899 to 1906. In these years new securities to the amount of nearly $400 million were floated to pay for extensions and betterments. Courage and prudence were needed to finance developments on such a scale, but Cassatt was without a peer as a railway manager. His legacy to the Pennsylvania was a great name for sound organisation and effective operating methods. For some 20 years after his death, quite a number of railways, including one or two in Great Britain, were content to follow the Pennsylvania lead and copy its operating devices.

In later years the spell was broken. The old prestige subsists no longer and the Pennsylvania's popularity with the public has suffered a partial eclipse. In its palmy days the management had great faith in traffic statistics as an administrative weapon. Now these indices of efficiency are often awry. Two significant averages are wagon-miles per serviceable wagon per day and net ton-miles per wagon per day. The 1950 figures for the Pennsylvania were considerably below those for all U.S.A. railways and far below the showing of the Santa Fe, Union Pacific, and Illinois Central. A partial explanation of this contrast in wagon user is that the percentage of bad order wagons to total wagons on line was 15 for the Pennsylvania, 6·3 for U.S.A. railways, 4·5 for the Santa Fe, and less than 3 for the Union Pacific and Illinois Central.

Last year the condition of the freight locomotive stock was also worse on the eastern than on the western railways. The percentage of unserviceable machines to total stock was 24·2 for the Pennsylvania, 20 for all railways, 15·2 for the Santa Fe, 18·4 for the Union Pacific, and 13·8 for the Illinois Central. There was an astonishing deterioration in the locomotive position compared with 1949 at a time when mobility was badly wanted, with the principal eastern lines all below the general level of fitness.

Conclusions

Our survey of financial and operating results demonstrates beyond cavil the extent of the Pennsylvania decline from its former pre-eminence. Yet it remains a wonderful undertaking. Much of its plant is magnificent and the working of main-line freight traffic in the region of Harrisburg, Altoona, and Pittsburgh impresses visitors from abroad as efficient railroading. During the past 10 or 15 years, however, there has been some lack of vision and drive as is apt to happen with a concern which has produced 104 annual reports.

In fiscal policy the Pennsylvania might have been expected to give a lead during the difficult years from 1940 to 1950. Table 3 below shows that it did less than the other large companies to reduce funded debt and missed an opportunity for strengthening its position.

TABLE 3—RAILWAY FUNDED DEBT: EXCLUDING EQUIPMENT OBLIGATIONS
(Millions)

Railway	1940	1950	Decrease	Decrease per cent.
	$	$	$	
Pennsylvania ...	627	502	125	20
New York Central	615	470	145	23
Illinois Central ...	347	162	185	53
Southern Pacific ...	342	220	120	35
Union Pacific ...	338	175	163	48
Santa Fe	304	201	103	34

The mid-west and central western railway managements were wise to lighten the burden of debt resting on their companies. They have succeeded also in accelerating their passenger and freight train services while holding down working costs to a reasonable level. There is a certain liveliness in railway circles at Chicago and further west which is producing results worth watching. In contrast the Pennsylvania's organisation seems to have lost its former vitality for the time being. On the operating side, especially, there is scope for fresh ideas to give more mobility to freight traffic at a lower price. Until that problem is solved, the Pennsylvania will not be again the great originative power it once was.

Traffic Control at Burntisland, Scottish Region

Operating organisation in a district recently provided with a modernised communications system

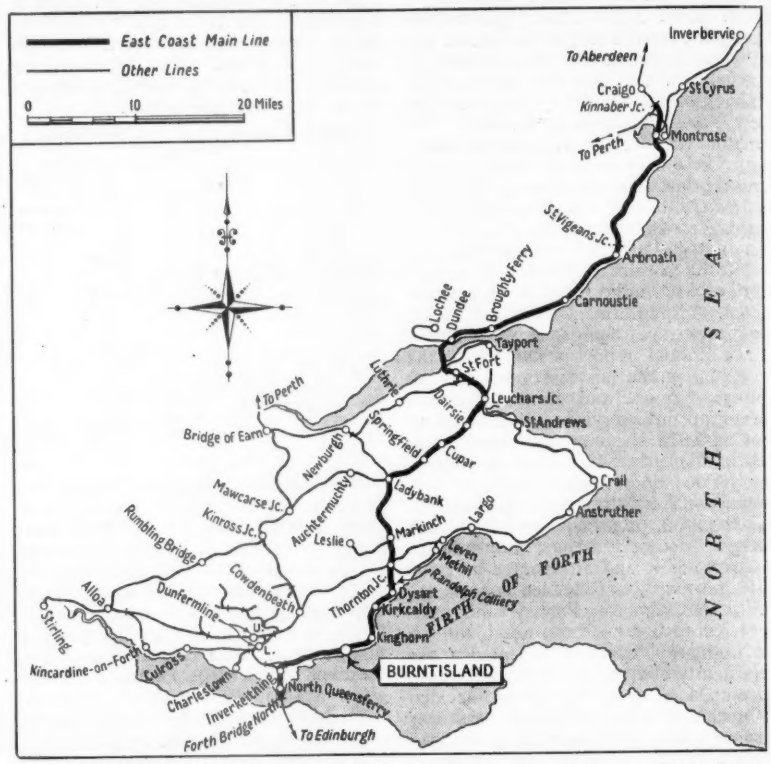
SINCE the war, several important schemes of improvement to traffic control facilities have been completed on various parts of British Railways. The most recent has been that in the Burntisland District of the Scottish Region, which involved installing the modernised communications network described in our June 2, 1950, issue. Much of the area dealt with in the "Scientific Survey of South-Eastern Scotland", published in connection with the Edinburgh meetings of the British Association this year, and discussed in our August 17 issue, comes under the control of Burntisland.

Telephone equipment for the Burntisland scheme was designed to railway requirements and manufactured by the Coventry Telephone Works of the General Electric Co. Ltd. In general, the facilities provided are similar to those given by the G.E.C. equipment for the recent L.M.R. control organisation scheme (see our May 9, 1947 and December 9, 1949 issues) but way-stations on most of the omnibus circuits in the Burntisland District have selective ringing by means of a dial system, whereas code ringing was adopted for similar circuits in the L.M.R. scheme. The incorporation of the telephone keyboards with the controllers' desks so as to combine ample working space with ready access to all communications facilities, and clear indication both of incoming calls and of lines which are engaged, have been specially studied. Relays and uniselectors of types that have given reliable service for many years in telephone exchanges all over the world are used in the selective ringing dial system.

The extent and importance of the Burntisland District are better judged from the map than from the name given to the whole district after the station at which the control office is situated. Some 60 years ago, however, Burntisland was a more familiar name to travellers North of Edinburgh than it is today. Before the Forth Bridge was opened, it was the terminal of the ferry from the south shore of the Firth of Forth at Granton, which was the only direct connection between Edinburgh and the railway northwards from Burntisland to Perth, Dundee and beyond.

Anglo-Scottish Passenger Services

Kinnaber Junction, the Northern limit of the district on the main line, is another name with associations in the history of Anglo-Scottish train services. At this point the East (former North British) and West (former Caledonian) Coast routes to Aberdeen converge into one pair of tracks, so that during the race to Aberdeen in 1895 the first train to reach Kinnaber scored an incontestible advantage over its competitor. In the early morning of August 18, 1895, the signalman at Kinnaber Junction received "Is line clear ?" for the trains of both routes simultaneously. With the issue in his hands of a contest which had excited intense public interest, an appeal to Control, had it then existed, to decide the question of precedence might surely have been excusable. The decision, however, had to be his alone, and with a gesture that has become historic he gave the road to the East Coast train, although he was himself a Caledonian employee, and therefore a servant of one of the West Coast Companies.



Burntisland Operating District, showing situation in relation to East Coast main line and West Fife colliery area

The most northerly point of the Burntisland district is Inverbervie, terminus of a branch running along the coast of Kincardineshire. Farther south, several lines serve Fifeshire coast resorts. West of the main East Coast route the district takes in the lines to Dunfermline, Stirling, and Bridge of Earn (south of Perth), with branches serving the West Fife colliery area. The district as a whole carries a varied industrial, business and pleasure traffic.

The work in the control office at Burntisland is in charge of a Deputy Chief Controller, who has an assistant working with him. For operating purposes the whole district is divided into five control sections, each in charge of a Section Controller. The desks of the Deputy Chief Controller and the Section Controllers are arranged in a block in the centre of the office so that information can be passed readily from hand to hand. In the far corner of the room, is the Passenger Trains Clerk. He is responsible for arranging services for vehicles conveying traffic by passenger train and notifying all concerned of the services to which they are to be attached. In addition he watches the running of main-line passenger and fish trains as recorded by the Section Controllers and advises junctions if late running may make special arrangements necessary to maintain connections. For this purpose he may consult with headquarters at Edinburgh, as the maintenance of long-distance north to south connections is the most important of his responsibilities in this respect.

The two other desks in the control office, seen in the foreground of the general view, are occupied by the Trainmen's Relief Controller and his assis-

General view of Burntisland District Control Office, showing the block of five Section Controllers' desks in the centre

tant, whose duties are concerned with the provision of locomotives, their crews, and guards.

The Freight Train Plant Section, staffed by a wagon clerk who has other clerical assistance, is in an adjoining room. An important part of this section's work is to regulate coal movements from collieries to ports. Reports are received from collieries of coal output and its destination. The section, having asked ports what ships are ready for coaling, advises collieries accordingly, and also notifies the stations that will be concerned with handling the traffic. In this section also requests for vehicles required for the transport of special loads by passenger train are received.

Wagon Allocation

A daily return is received by the Freight Plant Clerk from all collieries in the district of their wagon requirements, and it is his duty to allocate wagons accordingly. His scheme of allocation is passed to the Deputy Chief Controller, who has before him a daily return of empty wagons on hand at all yards in the district, compiled from reports telephoned to the five Section Controllers. On the basis of this information the Deputy Chief Controller arranges the formation of empty wagon trains by which the vehicles are returned to collieries.

The daily programme of freight movement throughout the district is planned by the Deputy Chief Controller. Three times a day, at 6 a.m., noon, and 6 p.m., the Section Controllers receive reports from all yards of traffic in their sidings, and destinations of such traffic. From this, the Deputy Chief Controller compiles a table of the location and direction of all traffic in the district, which enables him to prepare his programme of conditional trains for moving traffic within the district, with necessary advices to the Locomotive and Trainmen's Relief Controllers. The running of conditional trains is notified to stations concerned by the Section Controllers. The Deputy Chief Controller's knowledge of the day's traffic enables him to allocate conditional trains to work commensurate with the motive power available.

A daily report of the locomotive power position in the district is prepared by the Trainmen's Relief Controller and passed to H.Q. Control and the District Motive Power Superintendent at Thornton Junction at 5 a.m. This shows the turns to cover, engines on hand (including those belonging to other districts), engines expected in the district during the day, and engines under repair (including "foreigners" normally shedded in other districts).

Recording Train Movements

The actual running of trains within the district is recorded by the five Section Controllers on the basis of telephone messages from specified reporting points. Their sections divide the district into the following areas:

No. 1 Section: Dunfermline to Stirling, including Alloa district collieries; Oakley Yard and Colliery; Kincardine Branch to Kincardine-on-Forth.

No. 2 Section: Dunfermline to Bridge of Earn; Dunfermline to Thornton Junction; all West Fife collieries.

No. 3 Section: Forth Bridge North to Dysart (main line); Inverkeithing to Dunfermline Lower; Kincardine branch (from Charlestown Junction).

No. 4 Section: Dysart to Dairsie (main line); Thornton Junction to Crail (*via* Leven); Methil branch; Ladybank Junction to Bridge of Earn; Ladybank Junction to Mawcarse Junction.

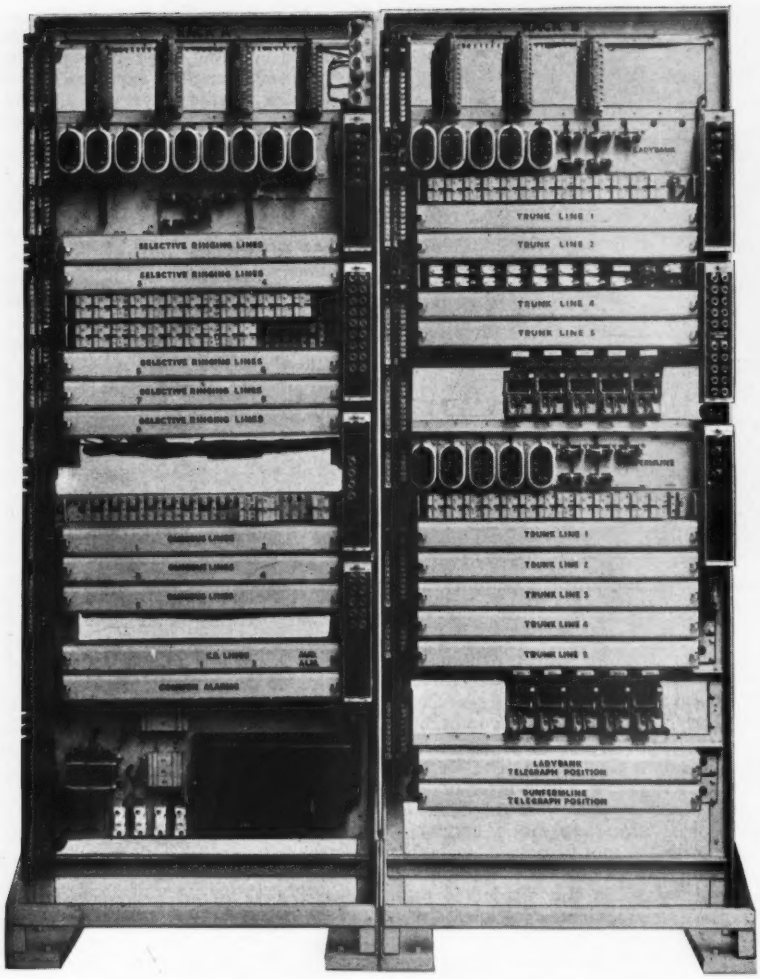
No. 5 Section: Leuchars to Kinnaber Junction; North of Fife, Tayport and St. Andrews branches; Dundee West and *ex*-L.M.S. branch to Lochee, etc.

Telephone Installation

Each Controller has direct telephone connection from his desk with all way-stations in his section. The frame above the keyboard accommodates a diagram of the lines in his section, as can be seen in the illustrations.

Before the present system was instal-

Controller's desk, showing installation of G.E.C. telephone keyboard



Racks of line-terminating relay sets at Burntisland, with uniselectors and associated apparatus for the selective-ringing lines

led, waystations on lines which terminated at Ladybank Junction and Dunfermline, mainly serving places north and west of these points, were called through subsidiary exchanges. These exchanges at Ladybank and Dunfermline have now been eliminated. The lines concerned still terminate there, but are now linked with Burntisland by five trunks from each place.

Code Ringing

To call one of the waystations on a code-ringing line terminated at Ladybank or Dunfermline, a controller at Burntisland now selects a disengaged trunk and then dials a three-digit number. The first digit selects the line required at the remote end of the trunk, while the next two ring the individual station. A code-ringing station is called by dialling a single digit to select the line and then operating the code ringing key.

A further special facility of the new communications network enables certain code-ringing lines to be coupled with the main system when connection to or from Burntisland is required, though for the rest of the time these lines are independent and the waystations on them can speak to each other without causing interference to other communications. The G.E.C. system for selective ringing lines enables waystations to communicate with each other direct if desired, but this facility was not called for on such lines in the Burntisland District and contact between waystations has to be established through a controller or te'egraph operator.

News of train running is received from some 85 reporting points throughout the district, only about 30 of which, however, are concerned with passenger trains. This information in respect of regularly booked freight services is entered on cards, each of which provides space for recording a week's running of a particular train. When such a train leaves a yard in the district, the yard staff informs the appropriate Section Controller of the engine number and load conveyed. Details of the engine crew and of the guard, with depot, are also entered, as the centralised supervision of trainmen's hours of work, their return to their home depots and the provision of reliefs are an essential function of traffic control. Similar information is received by telephone from an adjacent district when a train originating elsewhere passes into the control of Burntisland.

Recording Procedure

As the train proceeds through the district, its actual times at the various reporting points are entered below the booked times on its card, which is passed from one Section Controller to another according to its routing. At any moment, therefore, each Controller has on his deck the cards relating to the trains actually in his section at that time. At the end of its journey, or when the train leaves the district, its card is returned to the Deputy Chief Controller, the particulars of engine, loading and crew being telephoned to the next district control office if this proves necessary.

The procedure with conditional trains is similar, but a new card is made out for these on each occasion. Main-line passenger train running is recorded on duplicated sheets with space for entering particulars of a number of services on each. All these forms have a "remarks" column in which any departures from normal running are explained, and the regular analysis of such comments may reveal the desirability of making adjustments to the working timetable.

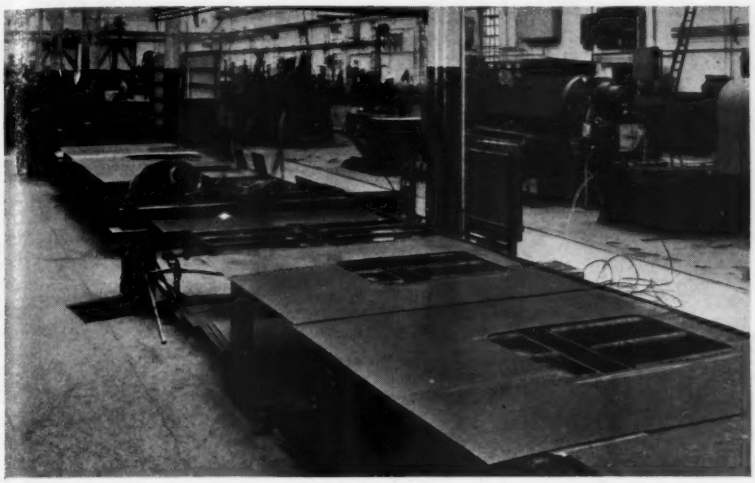
Relay Sets

All telephone lines into Burntisland Control Office terminate on a rack-mounted relay set. These relay sets are wired to a distribution frame, and from this frame wires are taken to all keyboard terminations and to a protector unit which terminates external line wires. By cross-connecting on the distribution frame, a line can be connected to any or to a number of keyboards. Similar rack-mounted equipment is installed at Ladybank and Dunfermline. Testing apparatus, mounted in a cabinet, enables a comprehensive range of tests to be made on all equipment. All keyboards are connected automatically to the wiring by means of plugs and jacks when placed in position. A spare keyboard is provided so that a unit requiring examination can be replaced without any alterations to wiring.

At Burntisland, Ladybank, and Dunfermline, the relay and uniselector equipment operates from 50-V. batteries. A 150-V. battery is provided for line signalling. Keyboard lamps at Burntisland are operated from the mains through 6-V. transformers; "call" lamps are connected automatically to a 6-volt tap on the 50-V. battery in the event of a mains failure. At Ladybank and Dunfermline, lamp current is always supplied from the 50-V. battery. Battery charging is effected by mains rectifier units. All waystation equipment in the Burntisland District is of the local battery type.

Construction of British Railways Standard Coaches—2

Method by which the coach body framing is built up from sub-assemblies



Roller table used for the assembly and carbon arc welding of side panels

THE bodyside framing is made up of a number of sub-assemblies, some of which are designed to suit 4 ft. or 2 ft. 3 in. bodyside windows; others are designed to suit the positions of doorways and the spacing of the bodyside windows, depending on the type of coach to be constructed. Each sub-assembly for a window has a "top hat" section standing pillar each side of the window opening joined by horizontal rails. The intermediate sub-assemblies have "Z" section pillars, and are either similarly joined by horizontal rails or have horizontal rails on each side of them. These pillars are formed to the correct section and curved in a power press.

All sub-assemblies are fabricated in welding fixtures, which have locations which ensure the correct positioning of the various members both vertical and horizontal; throw-over roller-type clamps are fitted to the jigs for securing the skeleton frames in position during welding. After welding, the sub-assemblies are placed in the main side-assembly jig in which the complete cariage side is produced. The jigs used for both the sub-assembly and the main-assembly of the skeleton frame are designed on somewhat similar lines.

Design of Main-Assembly Jigs

The design of the main-assembly jigs is more elaborate, since additional locating brackets are necessary to ensure accuracy of the complete side frame, including the side panels, before welding. The location brackets are fitted with adjusting screws, and the clamps are of the roller type. The building of the main frame from sub-assemblies reduces the amount of final contraction due to welding, and in setting out the locating points on the sub-assembly jigs allowance is made for such contraction. This is approximately $\frac{5}{16}$ in. over the full length of the carriage side. The building up on the carriage side from sub-assemblies also reduces the time occupied in the main-assembly skinning jig.

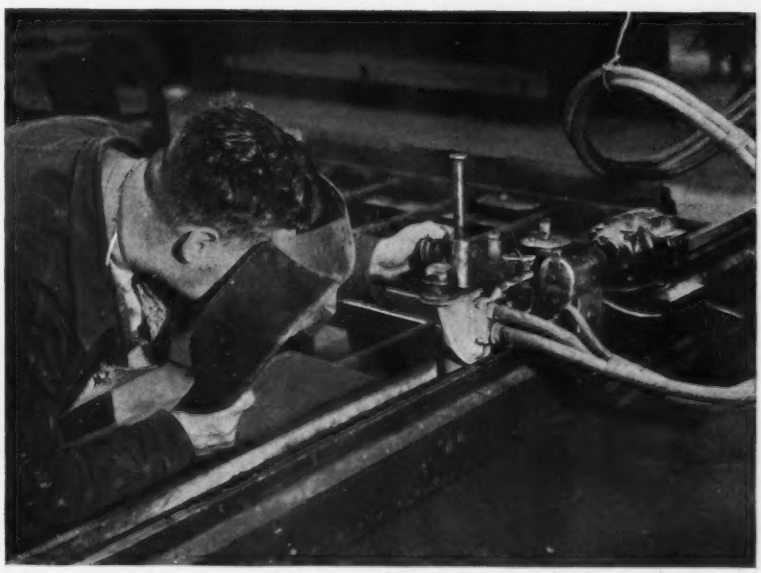
The completed frame, after welding, is within the limits allowed on the drawing. This is important as subsequent operations depend on accuracy of production at this stage. The side panels are 16 s.w.g. and on receipt are first guillotined to the different sizes required. A mechanical press is used for cutting the panels for window lights and sliding ventilators; the panels are pressed to facilitate flat glazing, degreased, and a coat of rust inhibiter paint is applied. The panels are placed on an assembly roller table, where they are placed edge-to-edge in their respective positions and carbon arc welded by machine on the inside face. The panels are then placed in the main-assembly skinning jig and correctly positioned by locating blocks, the inside of the panels facing outwards. The sub-assembly frames are next clamped to the panels for stitch welding, and are held together during loading into the main-assembly jig by distance bars. Stitch welding by metallic arc is carried out at about 4 in. spacing.

Side-frame skinning jigs are arranged in pairs, secured together by tight fitted bolts, the working faces facing outwards; both jigs are worked on, thus completing two complete body sides simultaneously. This procedure ensures a production flow inasmuch as two sides are ready for assembly to the carriage underframe, which avoids the delay which would be experienced if dual skinning jigs were not provided.

The erection of the carriage body, attachment of the sides, and roof erection are all part of a progressive building scheme. Interior finishing is also scheduled on similar lines.

Coach Body Erection

Preparatory to the erection of the carriage body on the underframe, the underframe is levelled, using four light tubular jacks, one at each corner of the underframe. After bisecting each headstock a datum line is marked off on a suitable transverse member. The position of the 12 body pillars, at which point the body shell erection reference jigs



Carbon arc welding process for joining side panels

Erection of body ends, showing the end framing pillars of a coach welded to the rigger plate

will be later used, is marked off on the underframe, and parallel with the datum line on the underframe. The reference jigs are of light detachable tubular frame of which the rectangular formation is guaranteed by diagonal bracing.

This frame is fitted with four double-eye dowel-pin location brackets, welded on the outside of the horizontal tubes, the latter being fitted on their underside with adjustment feet, which are welded at right angles to the jig frame and are fitted with adjusting screws for the purpose of obtaining the correct body camber. The jig frames, besides being fully detachable, have their horizontal members made in two sections to allow for dismantling and removal.

Correct Alignment of Bodyside

The object of these jigs is to guarantee correct alignment of each bodyside, relative to the underframe and to each other, and to maintain this position until all the bodyframe connections have been made. The jigs are mounted on the underframes at the position already marked off, the two end ones being undertaken first by being laid across the underframe, plumbed vertical, and clamped to the top face of the solebar. The remaining jigs are then lined up with the aid of a stretched line, plumbed, and made to register with their marked positions on the underframe.

The completed bodyside is removed from the skinning jig, by means of two overhead cranes, and is secured to the reference jigs by means of the dowel location pins, these pins being inserted in two jig drilled holes in the " top-hat " section of each body pillar, while the body cantrail ends are clamped to their mating angles on the body end. Checks for doorway openings, sizes, and so on, are made at this stage. The actual attachment of the body shell to the underframe is by means of short lengths of angle iron welded on each side of the base of the body pillars, acting as transverse outriggers, and welded to the top face of the underframe solebar.

An additional strengthening plate is interposed between the solebar face and the outrigger angles for a distance of approximately 12 ft. from each corner of the underframe. The cantrails are then welded to the junction angle on the body end. Further strengthening of the attachment of the body shell to the underframe is given by the manner of attaching the transverse floor members. These take the form of a " top-hat " section whose ends have been cut to embrace two opposing body pillars; the flange of each floor bearer is welded to the top face of the underframe, and the sides embracing the body pillars are in turn welded to them.

The reference jigs remain *in situ* until all the body shell, floor, and roof attachments have been made. After the ends have been built, the structure, complete with panels, is placed on the end of the underframe and located with the side and roof framing. The unit is held in position by bolts passing through the underframe headstock after lining up; the roof, bodyside, and cantrail angles are attached to the end framing.

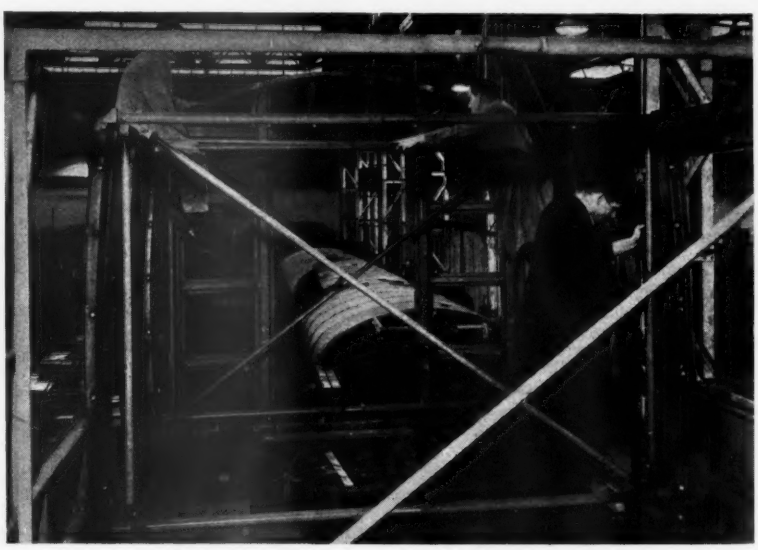
The rigger plates, which form part of the end assembly, are welded and bolted to the headstock, so holding the whole structure in position. The attachment to the end of the body framing is completed by welding a short " top-hat " section to the centre roof purlin and also by welding the boomerang brackets on the corner pillars to the bodyside framing. The side purlins are welded to the end archrail, and the last panel of the roof is attached and welded in position.

Building Body Ends

The carriage ends are manufactured in an assembly fixture and the method of locating the inside frame is similar to that used on the side frame assembly. The intermediate pillars, panels, and so on, are of heavier section. Full welding of the archrail and intermediate pillars to the panels is used. The door standing pillars and corner pillars are attached to the panels and to each other by a series of angle brackets. To provide additional strength to the body ends, the intermediate " top-hat " section pillars and the archrails are of $\frac{1}{4}$ in. thick mild steel, welded the length of the end panels.

The horizontal intermediate members forming the end structure are of a similar section to those used on the side frame, and are stitch welded only. The whole structure is welded to a rigger plate of $\frac{3}{8}$ in. mild steel. The end panelling is made up of five separate pieces and welded on both sides over the gangway. The sides forming the corner radius are also welded.

(*To be continued*)



Erection of the coach body. The sides and ends are lined up by the use of the tubular fixture attached to the underframe solebars

Construction of British Railways Standard Coaches—2

Main side framing assembly fixtures. After welding, the frame is placed in the skinning jig for stitch welding of panels

Main side-frame skinning jig, showing the method of locating skeleton frame and side panels before stitch welding

Construction of British Railways Standard Coaches—2

Loading finished end panels into the locating fixture; the end framing is clamped in position before welding

Welding the complete end framing, showing the method of securing the assembly before welding

RAILWAY NEWS SECTION

PERSONAL

Mr. H. C. Drayton has resigned as Chairman and Director of the Costa Rica Railway Co. Ltd., and Mr. R. P. W. Adeane has been elected Chairman.

We regret to record the death on September 18, at the age of 75, of Sir Henry T. Holloway, Chairman & a Managing Director of Holloway Bros. (London) Ltd., and a Past President of the Federation of Civil Engineering Contractors.

Mr. J. C. Mertens, Deputy Traffic Manager, Iraqi State Railways, who has been on leave in this country, left Great Britain for Iraq by train on September 24.

Mr. H. Hudson, who held the office of Secretary of the L.N.E.R. Superannuation Fund, G.N.R. Superannuation Fund, G.E.R. Pension Funds, and the L.N.E.R. Salaried Staff Assistance Fund, has retired.

The board of Directors of Charles Roberts & Co. Ltd. has appointed Mr. Leonard Rose to a seat on the board of the company. Mr. Rose joined the company 37 years ago, and was appointed Commercial Manager in 1937.

Major F. J. Chapple, Chairman of the Bristol Tramways & Carriage Co. Ltd., has accepted the Presidency of the Omnibus Society for 1952.

Mr. D. E. Webb has been appointed to the board of Madras Electric Tramways (1904) Limited, in place of Mr. S. H. Taylor, who has resigned. Mr. P. G. Brooks has relinquished the Chairmanship and has been succeeded in that position by Mr. Webb.

Dr. Max Strauss, Secretary of the Third Division, Swiss Federal Railways has been appointed Secretary General.

Mr. A. B. B. Valentine, B.A.(Oxon.), M.Inst.T., who will take office on October 1 as President of the Institute of Transport for 1951-52, is the Member of the London Transport Executive responsible for Operation & Commercial Matters. He was born in 1899 and educated at Highgate School and Oxford, where he was a scholar of Worcester College and took an Honours Degree in Classics in 1922. In 1928, after six years with the British Commercial Gas Association as Deputy Editor of Publications & Publicity, he joined the Underground Group of Companies and was engaged for a short time on publicity work, until he became an Assistant in the Office of Mr. Frank Pick, then Managing Director. He was Mr. Pick's Personal Assistant when the London Passenger Transport Board was formed and remained in that position until 1936. Mr. Valentine was Fares Officer of the Board from 1936 to 1939, Commercial Officer from 1939 to 1943 and Chief Supplies Officer from 1943 to the end of 1945. In January, 1946, he was appointed Chief Commercial Officer, covering both the traffic side and supplies, and on the retirement of Mr. Evan Evans from the post of Operating Manager (Railways) later in that year Mr. Valentine assumed that appointment in addition to his commercial duties. He was also a Member of the Railway Executive Committee from October, 1947, until the end of that year, in succession to the late Lord Ashfield, who resigned in consequence of his appointment to the British Transport Commission. When the London Transport Executive was set up in 1948, Mr. Valentine was appointed a full-time Member. Later in 1948 he was appointed a Member of the London Plan Working Party, set up by the British Transport Commission, and was one of the signatories to the Working Party's Report published in 1949, which recommended extensive works of new tube construction and railway electrification in the London area. Mr. Valentine was elected to the Council of the Institute of Transport in 1943 and served until 1946. He served on the Executive Committee (to which the Council had delegated many of its powers for the war years) and on the Henry Spurrier Memorial Committee, of which he became Chairman during 1945-46. He was elected a Vice-President in 1948 and is still serving in that capacity; he is also a Member of the Membership Committee. Mr. Valentine was awarded the Road Transport (Passenger) Medal in 1945.

Mr. A. B. B. Valentine
President of the Institute of Transport for 1951-52

Sir J. Donald Pollock has resigned as Chairman and from the board of Metal Industries Limited. He is succeeded as Chairman by Mr. R. W. McCrone, one of the founder Directors of the Company.

We regret to record the death on September 19 of Mr. F. Clements, who became Managing Director of the Park Gate Iron & Steel Co. Ltd. in 1937 and was Chairman between 1940-45. He retired as a Director in 1947, but continued as Technical Consultant until the time of his death.

Dr. E. C. Rollason, formerly a Delegate Director & Research Manager of Murex Welding Processes Limited, is taking up his appointment to the Henry Bell Wortley Chair of Metallurgy at Liverpool University on October 1. He is to be succeeded as Research Manager by Dr. W. I. Pumphrey.

Mr. P. G. S. Clark has been appointed Managing Director of the Devon General Omnibus & Touring Co. Ltd. in place of of Mr. J. W. Womar, who has resigned from the board. Mr. Peter Yorke has been elected a Director.

We regret to record the sudden death on September 24 of Mr. William Thomas Tolhurst, who had been associated with W. G. Allen & Sons (Tipton) Ltd. since 1912; he had been Works Manager from 1919 and a Director of the company from 1943.

We regret to record the death on September 22, at the age of 97, of Lord Maenan, G.B.E., K.C., Presiding Judge, Liverpool Court of Passage, 1903-48, and for many years a Railway & Canal Commissioner. He had also been a Commissioner for the Ministry of Transport during the year 1928 and in 1927 was Independent Chairman of the Monmouthshire & South Wales Trade Conciliation Board.

Mr. G. H. Fletcher has relinquished his position as General Manager of Metropolitan-Vickers Electrical Co. Ltd. Attercliffe Common Works, on reaching retiring age; he is remaining in the company's service as Consultant on the design of motors and generators for electric traction. He will also continue as Director of the Metropolitan-Vickers Electrical Export Co. Ltd. Mr. R. P. Knight has been appointed Manager, Attercliffe Common Works.

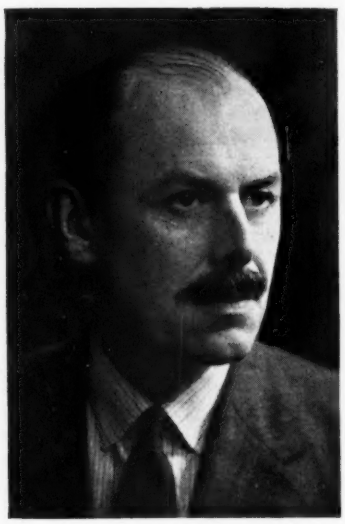
Mr. Allan Johnston, M.I.C.E., Acting Assistant Chief Engineer, East African Railways & Harbours, who has been appointed Engineer, Way & Works, in the Engineering Department, was born in 1900, and was educated at Robert Gordon's Technical College, Aberdeen. He was appointed to the Kenya & Uganda Railways in 1926 as Assistant Engineer, and was promoted to District Engineer in 1944, and to Senior District Engineer in 1946. Mr. Johnston has recently been acting as Assistant Chief Engineer.

Mr. M. Ganapati

Appointed Engineer-in-Chief, Integral Coach Factory, Perambur, India

Mr. R. L. E. Lawrence

Appointed District Operating Superintendent, Derby, London Midland Region



Mr. F. R. L. Barnwell

Appointed District Engineer, Inverness, Scottish Region

Mr. M. Ganapati, B.E., M.E.Hons., M.I.E.(Ind.), Engineer-in-Chief, Indian Railways Locomotive Works, Chittaranjan, who, as recorded in our September 21 issue, has been appointed Engineer-in-Chief, Integral Coach Factory, Perambur, was born in 1903 and graduated from the Engineering College, Guindy, Madras, in 1925. After completing his apprenticeship with the Tata Power Company at Bombay, he served with that firm as an Electrical Erection Engineer, and later became an Engineering Supervisor on the construction of the Mettur Dam. He joined the East Indian Railway, as an Assistant Executive Engineer in the Indian Railway Service of Engineers, in 1928. Between 1928 and 1933, Mr. Ganapati was attached to the Lucknow-Sultanpur construction works, Lower Sone Bridge regirdering and the Calcutta chord railway construction. Between 1933 and 1936, he was on open line works, when he joined the East Indian Railway Bridge Office on special duty connected with the reorganisation of bridge maintenance. After four months as Bridge Engineer towards the end of 1939, he joined the Dufferin Bridge regirdering project. When this work was postponed, due to the war, he proceeded on special duty in connection with the construction of the Panagar Base and, later in 1943, was in charge of the restoration and reconstruction work caused by the Damodar river breaches near Calcutta on the E.I.R. Between 1944-45 he served as Track Supply Officer at the E.I.R. Head Office, and during the succeeding two years was Deputy Chief Engineer in charge of the regirdering of the Dufferin Bridge at Banaras. After three months as Deputy General Manager (Works), he took over as Engineer-in-Chief of the Chittaranjan Locomotive Works on January 1, 1948. On completing the construction of this 15-crore project by the end of March, 1951, he has now been assigned the work in connection with the construction of the Integral Coach Factory, Perambur.

Mr. R. L. E. Lawrence, O.B.E., District Operating Superintendent, Liverpool Central, London Midland Region, who, as recorded in our August 10 issue, has been appointed District Operating Superintendent, Derby, began his railway career in 1934 as a clerk on the L.N.E.R. at Barswick. After training at various stations around Newcastle and York, he was appointed as a passenger trains clerk in the Superintendent's Office at York in 1937; in 1938 he was appointed to the Works Section in the Chief General Manager's Office, at Kings Cross. In 1939 he joined the Forces and attained the rank of Colonel in the Royal Engineers. In February, 1946, after demobilisation, Mr. Lawrence went to Darlington as Assistant to the District Superintendent & District

Mr. F. J. J. Prior

Appointed District Engineer, Purley, Southern Region

The late Mr. W. H. Hanlon

Assistant Chief Commercial Manager (Goods), L.M.S.R., 1942-44

The late Mr. D. Williamson

Works Superintendent, Horwich Locomotive Works, L.M.S.R. & L.M.R., 1936-51

Locomotive Superintendent, and in April, 1947, became Assistant District Superintendent at Sunderland; subsequently he was appointed Trains Assistant to the Superintendent & Motive Power Superintendent at York. He became Trains Assistant to the Divisional Operating & Commercial Superintendents, York, in 1949, and District Operating Superintendent, Liverpool Central, in 1950.

Mr. F. R. L. Barnwell, O.B.E., Assistant District Engineer, Stratford, Eastern Region, who, as recorded in our August 3 issue, has been appointed District Engineer, Inverness, Scottish Region, was educated at Repton, and joined the L.N.E.R. in 1926 as a pupil to Mr. C. J. Brown. After experience in the Parliamentary, New Works, and Signal Departments and in the District Offices at Kings Cross and Nottingham, Mr. Barnwell served largely in the New Work and Steel Works Departments and was Resident Engineer of many new works in connection with the electrification from Liverpool Street to Shenfield. During the war he served in the Royal Engineers on railway construction and was with the British Expeditionary Force in France. Following service in North Africa, he commanded No. 1 Railway Construction & Maintenance Group in Italy. Mr. Barnwell is an O.B.E., holds the American Bronze Star Medal, and was mentioned in dispatches. He is in the Supplementary Reserve and is Lt.-Colonel (Maintenance) in No. 18 Railway Group, R.E. In 1946, on returning to railway service, he became Assistant District Engineer, Sheffield, L.N.E.R., and was appointed Assistant District Engineer, Stratford, in 1949.

Mr. F. J. J. Prior, District Engineer, Derby (South), London Midland Region, who, as recorded in our September 14 issue, has been appointed District Engineer, Purley, Southern Region, with effect from September 24, joined the G.W.R. in 1924 in the Chief Engineer's Office at Paddington. In September, 1939, he was Assistant in the Divisional Engineer's Office at Shrewsbury, which he left the same year to take up active service with the Royal Engineers (Supplementary Reserve). In December, 1942, he became Railway Reconstruction Engineer, Manipur Road, Assam, and a year later was Assistant Director of Transportation, Assam. After leaving the Army with the rank of Lt.-Colonel, he was appointed as Assistant Divisional Engineer, Plymouth, G.W.R., and in November, 1949, became District Engineer, Derby (South), L.M. Region.

We regret to record the death on September 17 of Mr. W. H. Hanlon, who relinquished his duties as Assistant Chief Commercial Manager (Goods), L.M.S.R., as a result of ill health in 1944. He entered the service of the former Midland Railway in 1901 in the Goods Manager's Department at Derby, and became Chief Clerk of the Accommodation & Canvassing Office in 1919. In 1925 he was appointed Assistant to the District Goods Manager at Warrington, and in the next year assumed control of the then Chief Goods Manager's newly-enlarged Development Section at Euston. In this position Mr. Hanlon took a prominent part in the experimental work which led to the establishment of the container system on the British railways, and he was associated also with the introduction of country lorry-services on the L.M.S.R. In 1930 his responsibilities were extended to the Chief Goods Manager's Canvassing Department, and in the L.M.S.R. reorganisation of 1932 he was made Assistant (Development & Canvassing). In October, 1933, he was made Assistant (Research), in charge of the department established for undertaking commercial research. Mr. Hanlon was appointed Assistant to Chief Commercial Manager (Goods) in 1935 and Assistant Chief Commercial Manager (Goods) in 1942. Mr. Hanlon had also been associated with the Road & Rail Central Conference. Among the Officers and Officials of the London Midland Region who attended the Requiem Mass at the Church of Our Lady and St. Thomas of Canterbury, Harrow, and the burial service at the Harrow (Old) Cemetery on September 20 were the following:—

Mr. A. E. Ayling, representing Mr. J. W. Watkins, Chief Regional Officer, and Mr. E. S. Hunt, Assistant Chief Regional Officer; Messrs. H. G. N. Reed, Assistant Commercial Superintendent, also representing Mr. A. H. Hammett, Commercial Superintendent; C. F. Beck, Assistant (Goods) to Commercial Superintendent, also representing Mr. R. Paterson, Chief Assistant to Commercial Superintendent; F. E. Bailey, Assistant (Continental) to Commercial Superintendent; T. E. Jackson, Assistant (Claims) to Commercial Superintendent; R. C. Pickerell, Assistant to Operating Superintendent; H. Eccles, District Goods Superintendent, London; V. Pemberton, Commercial Superintendent's Office, also representing Mr. C. Clark, Assistant to Commercial Superintendent.

Also among those present were: Mr. R. T. Scarfe, also representing Messrs. J. H. Pike, Chief Rates & Charges Officer, Railway Executive, G. E. Curtis Executive Officer (Goods), Railway Executive, H. Barrett, and J. Trafford; Mr. W. Simpson, representing Mr. W. H. Glossop, Training & Education Officer, Railway Executive; Messrs. T. E. Argile, Chief Commercial Manager, L.M.S.R., retired; C. Johnstone, Assistant Chief Commercial Manager, L.M.S.R., retired; T. A. Firth, Assistant, (Staff) to Chief Commercial Manager, L.M.S.R. retired; A. C. F. Calladine, Assistant Chief Operating Manager (Passenger), L.M.S.R., retired; E. Dawson, Assistant to Commercial Superintendent, L.M.S.R., retired.

We regret to record the death on August 31, at the age of 64, of Mr. Douglas Williamson, O.B.E., M.I.Loco.E., Works Superintendent, Horwich Locomotive Works, London Midland Region. He was educated at the Chapel of Garioch Public School, served his apprenticeship at the Inverurie Works of the G.N.S.R. from 1902 to 1907, and subsequently was promoted to draughtsman and later to Materials Inspector. In 1913, he joined the Caledonian Railway as Assistant Foreman and afterwards became Chief Foreman of the Locomotive Erecting Shop. In 1919 he became Locomotive Works Superintendent at the Scotswood Works of Sir W. G. Armstrong Whitworth & Co. Ltd., where he remained for twelve months, until taking up the position of Deputy Works Manager, Dalmuir, with William Beardmore & Co. Ltd. Mr. Williamson returned to the railway service in 1921, as Works Manager of the Locomotive & Carriage & Wagon Works, Kilmarnock, G.S.W.R., and in 1925, was appointed Assistant Mechanical Engineer at St. Rollox, Glasgow, L.M.S.R. In 1931 he became Works Superintendent at St. Rollox, and in 1936 was appointed Works Superintendent at Horwich Locomotive Works. He was awarded the O.B.E. in the 1945 New Year Honours in recognition of the work he carried out at Horwich during the war. Mr. Williamson was cremated at Brighton, and among those who attended the service were:—

Messrs. R. A. Riddles, Member of the Railway Executive for Mechanical & Electrical Engineering; R. C. Bond, Chief Officer (Locomotive Construction & Maintenance), Railway Executive; E. S. Cox, Executive Officer (Design), Railway Executive; M. S. Hatchell, Principal Assistant (Locomotives), Mechanical & Electrical Engineer's Department, London Midland Region, Derby; M. G. Burrows, Assistant Mechanical & Electrical Engineer, Southern Region; E. R. Brown, Assistant Works Manager, Crewe, London Midland Region; J. Sinclair, Assistant Works Superintendent, Horwich, London Midland Region.

The Iron & Steel Corporation of Great Britain has decided to reconstitute the boards of Guest Keen & Baldwins Iron & Steel Co. Ltd. and Guest Keen & Nettlefolds (South Wales) Limited. In the reconstitution of the boards of the two companies three part-time Directors will retire from Guest Keen & Baldwins Iron & Steel Co. Ltd. and six part-time Directors will retire from Guest Keen & Nettlefolds (South Wales) Limited; all the full-time Executive Directors of both companies retain their appointments. The full-time Executive Directors of Guest Keen & Baldwins Iron & Steel Co. Ltd. will be: Messrs. C. R. Wheeler and T. Jolly, Joint Managing Directors, in addition to which Messrs. E. H. Lever, H. F. Spencer and J. S. Hollings, will remain on the board. The full-time Executive Directors of Guest Keen & Nettlefolds (South Wales) Limited will be: Messrs. N. R. Brook, General Manager; G. A. Phipps, Works Manager; E. Brown, Commercial Manager.

Funeral of Mr. R. M. T. Richards

The funeral of Mr. R. M. T. Richards, Deputy Chief Regional Officer, Southern Region, 1948-50, who died on September 16, took place at St. John's Crematorium, Woking, on September 21. In addition to family mourners those present included:—

Southern Region Messrs. C. P. Hopkins, Chief Regional Officer; S. W. Smart, Superintendent of Operation; T. E. Chrimes, Motive Power Superintendent; F. J. Wymer, Assistant Chief Regional Officer; R. E. Sinfield, Continental Superintendent; F. R. Stockdill, Accountant; A. D. Cook, Treasurer; L. J. Boucher, Signal & Telecommunications Engineer; F. Munns, Carriage & Wagon Engineer; E. M. Jackson, Road Motor Engineer; S. H. Isaac, Assistant Marine Manager, representing Mr. R. P. Biddle, Docks & Marine Manager; M. E. Constant, Personal Assistant to Civil Engineer, representing Mr. F. E. Campion, Civil Engineer; S. L. Furnivall, District Engineer, Woking; H. B. Taylor, Assistant Operating Superintendent; W. H. Corney, Assistant Commercial Superintendent, represenging Mr. W. H. F. Mepsted, Commercial Superintendent; J. Bridger, District Traffic Superintendent, Redhill; N. L. Collins, representing Mr. A. Earle Edwards, District Traffic Superintendent, Orpington; L. T. Corney, representing Mr. P. A. White, District Traffic Superintendent, Woking; C. N. Anderson, representing Mr. W. H. Scutt, District Traffic Superintendent, Southampton.

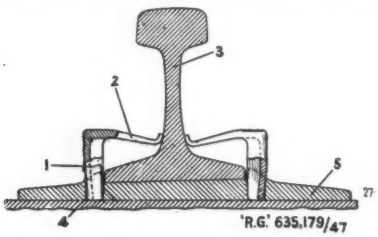
Also among those present were: Messrs. S. B. Warder, Chief Officer (Electrical Engineering), Railway Executive; A. Endicott, Chief Estate & Rating Surveyor, Railway Executive; J. Masterton, Assistant for Films & Photographs, Railway Executive; A. B. Macleod, Stores Superintendent, London Midland Region; Mr. Sherriff, former Compensation Officer, Southern Railway; Messrs. W. J. England, former Superintendent of Operation, Southern Railway; C. G. Grasemann, former Public Relations & Publicity Officer, Southern Region; O. W. Cromwell, former Chief Officer for Labour & Establishment, Southern Region; R. G. Henbest, Estate & Rating Surveyor, Western Region; H. E. O. Wheeler, former Deputy Traffic Manager, Southern Railway; J. L. Rendel, former Indoor Assistant to Traffic Manager, Southern Railway; Colonel K. R. N. Speir, Honorary Secretary, Transportation Club; Messrs. C. E. R. Sherrington, Director of Research Information Division, British Transport Commission; H. C. Walton, Secretary, Railway Benevolent Institution; A. G. Evershed, Secretary Superintendent, Railway Servants' Orphanage, Woking; W. C. Collins, Traffic Officer, British Transport Commission.

ABSTRACTS OF RECENT PATENTS*

No. 635,179. Track Equipment

A. H. Stevens, 5-9 Quality Court, Chancery Lane, London, W.C.2; communicated by the American Brake Shoe Company 230, Park Avenue, New York, U.S.A. (*Application date: December 16, 1947.*)

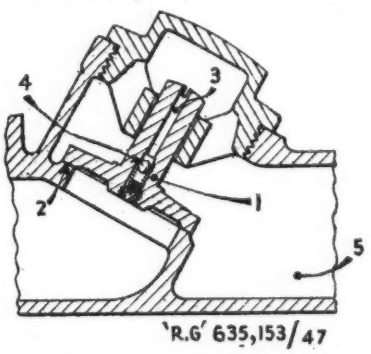
A rail anchor, to prevent longitudinal creeping of a rail as a result of braking and other forces, consists of a pin 1 having a projecting limb 2 which is broadened at its end to provide a wide surface in contact with the web of the rail 3 when the pin is driven into a hole 4 in the rail supporting plate 5. Preferably two such anchors are provided on opposite sides of each rail at each sleeper. Although the gradual movement resulting from normal expansion and contraction is permitted, any tendency to sudden longitudinal movement causes the pins to tend to turn slightly in their holes so that the edge in contact with the rail bites into it and the web is clamped between the two opposed anchors.



No. 635,153. Steam Injectors

Nathan Manufacturing Company, 416 East 106th Street, New York, U.S.A. (*Convention date: September 25, 1942.*)

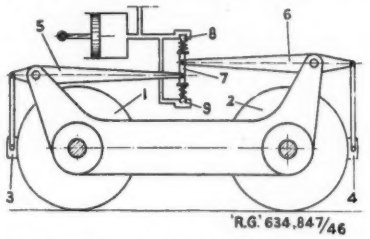
To facilitate starting injectors, a supply system has two non-return valves in the feed pipe, one close to the boiler and one close to the injector, the latter of which has a small by-pass valve, opening in the reverse direction. In one arrangement, as shown, the main valve 1 is provided with a seating 2 and has its stem drilled to provide a passage 3 leading to a spring-loaded ball valve 44. When the injector is started, the pressure opens the main valve 1 and the non-return valve at the boiler. When it is stopped there is a sudden reduction of pressure to atmospheric and valve 1 closes, after which the pressure in the feed pipe 5 leaks back through the ball valve until balanced by the spring. The boiler valve therefore closes and the feed pipe is maintained full of water at a reduced pressure, which is preferably about 20 lb./sq. in. The loss of water is negligible and the injector starts against a pressure of only 20 lb./sq. in. from which it can rapidly build up to boiler pressure.



No. 634,847. Braking

Tecalemit S.A., 18, Rue Brunel, Paris, France. (*Convention date: September 14, 1945.*)

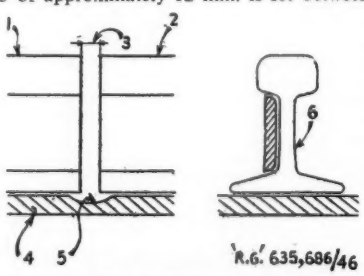
In order to avoid wheels locking, one axle 1 is braked more strongly than the adjacent axle 2, which is braked to the same degree as the rest of the train. The drag on the corresponding brake shoes 3, 4, is communicated through suitably proportioned levers, 5, 6, so that under normal braking conditions the forces exerted by the levers on a plunger 7 are balanced, the plunger remains central, and the valves 8, 9 remain closed. If braking is increased to such an extent as to tend to lock the axle 1 the drag on that shoe 3 increases sharply immediately before locking and the lever system is unbalanced so that one of the valves 8, 9 is opened and the system is exhausted until balance is restored. If, for any reason, the axle did, in fact, lock, the drag would fall to a very low value and the resultant unbalance would again reduce the braking effort. The specification also describes a hydraulic balancing system.



No. 635,686. Welded Rail Joints

M. H. Carpmael, 24, Southampton Buildings, London, W.C.2; communicated by S. A. des Ateliers de Secheron, Geneva, Switzerland. (*Application date: May 1, 1946.*)

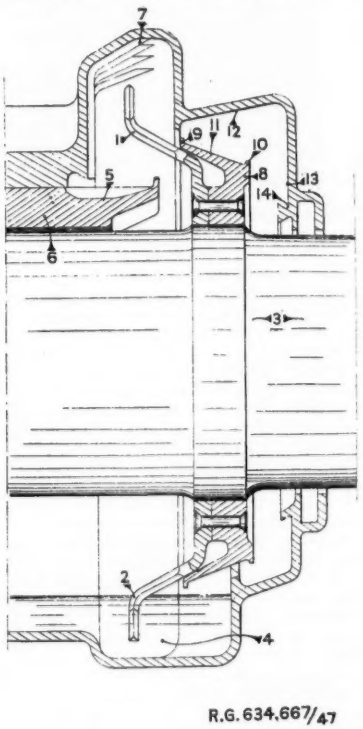
In order to ensure the building up of an adequate amount of weld metal in joining two rails 1, 2 by electric welding, a gap 3 of approximately 12 mm. is set between the two rail ends and a support plate 4, having a recess 5, is held against the base of the rail while the gap between the base flanges of the rails is filled. A similarly recessed support plate 6 is then applied to the web of the rail, and this part is welded and finally, with plates held on each side under the head of the rail, this part also is joined. The support plates may be of copper, iron, carbon, or fire clay and their use assists correct shaping of the joint to ensure adequate strength. If desired, the base flange of the rail may be bent downward to facilitate forming the joint at this point.



No. 643,667. Axleboxes

Société Generale Isothermos, 35 Rue de la Tour d'Auvergne, Paris. (*Convention date: August 30, 1946.*)

An internal axlebox for locomotives is constructed so as to avoid oil loss resulting from lateral movement of the axle. Lubrication is provided by paddles 1, 2 secured to the axle 3 and arranged to pick up oil from a sump 4 and drop it into a trough 5, from which it passes to the bearing 6. At high speeds, oil thrown off centrifugally is caught in the upper part 7 of the casing and led down to the trough 5. The axle also carries a recovery disc 8 having two flanges 9, 10, and an inclined intermediate section 11. Any oil which is thrown on to the outer part 12 of the casing is led back by its sloping face to fall on the surface 11, whence it travels by centrifugal force inwards until thrown off by flange 9, either into the part 7 or into the sump 4. The dimensions of the recovery disc 8 and the paddles 1, 2 are such that irrespective of relative sideways movement of the axle, within allowable limits, all oil is ultimately returned to the sump and none can normally reach the outer wall 13. Any which does so by splashing is returned by the channel 14.



COPPER PRICES REDUCED.—The Ministry of Materials announces that as from September 13 the price of electrolytic copper has been reduced by £7 to £227 per long ton at works. This reduction has been made possible by the decision not to buy copper for the time being at prices exceeding the American f.a.s. export price. Discounts, premiums on special shapes, and limitations on forward purchasing arrangements announced on May 1 remain unaltered. The Minister of Supply has made an Order showing corresponding adjustments in the controlled maximum prices of scrap and unwrought brass as from September 13.

* These abridgments of recently published specifications are specially compiled for *The Railway Gazette*, by permission of the Controller of His Majesty's Stationery Office. Full specifications can be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, price 1s. each

American Brassfounding Practice

Summary of report by the British productivity team which visited the United States last year

The latest productivity report deals with brassfounding practice in the U.S.A., and it has been published* on behalf of the British team which visited the United States in 1950 under the leadership of Mr. F. Hudson, Development & Research Department, the Mond Nickel Co. Ltd.

American brassfoundry practice was found to be similar to that in Britain with an industry made up of a large number of relatively small foundries. Britain is ahead of American standards on the technical side.

Incentives

Regarding production the output per manhour in the United States is higher than in this country. There are several reasons for this, the chief of which is the greater incentive to earn, owing to the American way of life, and the will to work hard and efficiently. A high level of income and production has resulted in a standard of living which far exceeds anything so far known. The second reason is the maximum use made of mechanised aids incorporated in a layout of simple though efficient design by even the smallest foundry.

Mechanisation is used in the U.S.A. to increase output, and by producing more both management and worker earn more, both being satisfied as a result. Even the smallest jobbing brassfoundry in the U.S.A. is planned for the work it has to do. Moulds are made by machine and melting operations are carried out in a separate shop.

Molten metal is delivered by the overhead monorail system to the central skimming station, where pouring temperatures are also recorded, and at this point the metal is transferred to a light overhead mechanical handling system serving the entire section. After casting, the moulds are pushed by hand on to a transfer bogie, situated at the ends of the roller conveyors.

Used moulding sand is delivered by inclined belt to an aerator feeding an overhead storage hopper. The required amount of water and new sand is added on this belt. Distribution of reconditioned sand to the moulding machines is carried out by wheel-barrow. Most of the foundries visited by the team during the tour used portable moulding machines.

Simple Conveyor Systems

For a similar reason conveyor systems were invariably of the simple roller type. Foundries all had good lighting and ventilation systems and were clean and orderly. Every foundry used conveyors to assist pouring operations to conserve effort and to maintain a good standard of housekeeping. Even the tub and bench moulders have their own roller conveyors or racks. Great importance is attached to accurate pattern equipment and American foundries tend to standardise on matchplates for short runs. Foundries seldom have their own pattern shop as requirements are met by outside firms.

Members were impressed by the efficient and yet inexpensive overhead monorail mechanical handling systems. These were the standard production of one maker. The interlocking transfer bridge system used for transporting loads from one section to another also is considered worthy of note. This equipment differs from that available in Britain both as regards design of beam and method of suspension. The common structural I-beam is rolled from soft mild steel and has a bevelled flange.

It is impossible to operate any overhead handling equipment and prevent the load from swinging. The flexible method of suspending American systems, provided by ball-and-socket connections with hanger rods in the ceiling and beam fittings, permits the system to swing with the load. Therefore the carrier wheels are always in full contact with both sides of the beam tread and no one wheel is overloaded.

Moulding boxes fitted with round and elongated pin bushes are widely used in the U.S.A. and assist productivity by facilitating the rapid closing and opening of moulds. Only a few foundries were seen with dry-sand moulds. Large castings are generally made in green-sand and then skin-dried or else the mould is built up from oil-sand sections.

One of the most interesting things in the fettling shop was a 20-in. unbreakable high-speed cutting-off wheel used for the rapid removal of large risers from aluminium bronze castings. The casting was held on the machine table simply by means of overhead block and tackle, but any slight movement of the casting, while causing the wheel to deflect, did not lead to breakage.

Quite a number of American brassfoundries use gypsum riser sleeves to promote better feeding of medium and large castings and particularly in the case of high-tensile brass and aluminium bronze. These sleeves enable the molten metal to remain liquid much longer.

Many points of interest were seen in machine shops, such as a six-station machine milling the hexagon ends on small gunmetal valve bodies, and a six-spindle three-quarter-turn cock-grinding machine, lapping-in gas taps at the rate of six a minute and keeping the operator continuously loading and unloading.

Absence of Canteens

Workers are made accident-conscious by the prominent display of safety slogans rather than by the use of guards and safety devices. Invariably these tend to reduce productivity. Canteen facilities are conspicuous by their absence. American workers want no tea breaks and only half-an-hour for lunch. Instead of canteens, slot machines are provided in convenient places supplying peanuts, chewing gum, candy, and so on.

* "The Brassfoundry." Published by the Anglo-American Council on Productivity, 21, Tothill Street, London, S.W.1. Price 7s. 6d.

International Electrotechnical Commission

Seeking agreement on specifications for electric traction equipment and control

Meetings of the Technical Committee on Electric Traction of the International Electrotechnical Commission were held in London at the British Standards Institution on September 24-25. Some 35 delegates were present, representing the United Kingdom, Belgium, Denmark, France, Italy, the Netherlands, Sweden, Switzerland, and the U.S.A. These meetings were held under the Chairmanship of Dr. M. Semenza, of Milan. Mr. M. Garreau, Chief of the Electric Traction Research Division, French National Railways, was Secretary of the conference.

These meetings were followed by a further meeting, on September 26, of the International Mixed Committee on Electric Traction Equipment consisting of representatives of the International Electrotechnical Commission, the International Union of Railways, and the International Union of Tramways.

The United Kingdom was represented by:—

Messrs. G. H. Fletcher, Chief Traction Designer, Metropolitan-Vickers Electrical Co. Ltd. (Chief Delegate); W. A. Sykes, Assistant Electrical Engineer, Southern Region, British Railways; H. R. Broadbent, Assistant Mechanical Engineer's (Development) Department, London Transport Executive; F. E. Butler, Senior Engineer, Control Gear Department, British Thomson-Houston Co. Ltd.; A. D. Ferguson, Assistant Chief Engineer, Traction Control Department, and H. Newsam, Chief Engineer, Traction Motor Department, Metropolitan-Vickers Electrical Co. Ltd.; W. E. Lewis, Traction Motor Department, General Electric Co. Ltd.; and F. Roberts, Design Engineer, Traction Control Department, English Electric Co. Ltd.

At the opening of the conference on September 24, the delegates were entertained by the British Standards Institution, the Electrical Section of which acts as the British National Committee of the I.E.C., at a luncheon at St. Ermin's Hotel, London, S.W.1. A dinner was given at the Cutlers Hall on September 26 by British manufacturers of electrical equipment. In addition to the delegates those accepting invitations to the dinner included:—

Messrs. H. H. E. Barton, Merz & McLellan, Consulting Engineers; H. H. R. Binney, Director, British Standards Institution; A. Campbell, Chief Mechanical Engineer, Crown Agents for the Colonies; B. W. C. Cooke, Editor, *The Railway Gazette*; W. S. Graff-Baker, Chief Mechanical Engineer (Railways), London Transport Executive; Ranald J. Harvey, Consulting Engineer, New Zealand Government Railways; L. Ruppert, Secretary, Central Office, I.E.C.; J. F. Stanley, Assistant Technical Director, British Standards Institution; Julian S. Tritton, of Rendel, Palmer & Tritton, Consulting Engineers; and S. B. Warder, Chief Officer (Electrical Engineering), Railway Executive, British Railways.

REGISTER OF INDUSTRIAL PREMISES.—It was announced by the Board of Trade on July 29 that the Government had decided to set up a small organisation responsible for the control of factory and storage premises in the event of an emergency. This organisation is now the Factory & Storage Premises (Defence Planning) Division. As one of its first tasks the Division is bringing up to date its register of industrial premises, and industrialists will soon be asked to supply certain basic information about their premises. By limiting the approach to firms occupying a floor space exceeding 5,000 sq. ft., and omitting those industries which are already heavily committed to the rearmament programme, only about one-third of the industrialists will be asked to complete a short questionnaire. Information will be confidential.

Conference on Electric Traction at Industrial Frequencies

A conference on electric traction at industrial frequencies, organised by the French National Railways, is to be held from October 12-15 at Annecy, the Savoy lakeside resort, situated on the line from Aix-les-Bains to La Roche-sur-Foron, which has been experimentally electrified at 50 cycles.

Attendance at the conference, to which reference is made in an editorial note in this issue, is by invitation only, and it is understood that the representatives of British Railways attending are Mr. R. A. Riddles, Member, and Mr. S. B. Warder, Chief Officer (Electrical Engineering), Railway Executive. Invitations have also been extended to senior electric traction executives of the major electrical manufacturing companies, and the British representation is likely to total about 12 delegates.

A detailed agenda is not yet available, but the conference will take the form of a series of papers interspersed with visits of inspection, covering all aspects of the S.N.C.F. experiment on this line. Delegates will be afforded opportunities to inspect installations and rolling stock in detail and to discuss technical problems on the spot with engineers of the S.N.C.F. and of the firms manufacturing the equipment used.

The electrification at the Aix-les-Bains to La Roche-sur-Foron line was inaugurated on May 19 last when the final section, Annecy - La Roche, was completed. Several references to it, and general considerations of single-phase, 50-cycle traction have been published from time to time in our columns, in particular in our February 24 and December 29, 1950, June 15 and 22, and July 13 and 27, 1951, issues.

Extension of 50-Cycle Traction

It has been announced that the success of the experiment on the La Roche-sur-Foron line has prompted the French National Railways not only to extend this system of traction beyond La Roche-sur-Foron to Annemasse in one direction and St. Gervais-les-Bains-Le-Fayet in the other, but also to prepare a scheme for the important and busy north-to-east artery between Dunkirk and Thionville, traversing a highly important industrial region. This project also contemplates the inclusion of the line from Thionville to Trier and Koblenz in Western Germany.

The impending conference at Annecy is thus a milestone in the development of single-phase traction at industrial frequencies and the data presented will be of great value, particularly as little has yet been written on this increasingly important subject, and so far it is mentioned in no textbook.

Weed-Spraying Plant, G.N.R.(I.)

The Great Northern Railway (Ireland) has designed and constructed at its Dundalk Works a weed-spraying plant, which includes a steam injector to perform all the functions of heating the water for dissolving the chemicals, mixing the solution, transfer from the mixing tank to the storage tank, and spraying, obviating the use of steam heating coils, power-operated pumps, and so on. Steam for the injector is supplied from the ordinary carriage steam-heating apparatus fitted to the locomotive hauling the train.

The plant consists of two vehicles, a 3,000-gal. storage tank and a second vehicle on which the mixture tank and spraying apparatus and all controls are mounted. The mixing tank is of 800 gal. capacity, with a screen placed 12 in. from the top.

Preparation of Solution

The chemicals are loaded on to this screen and the water is heated and circulated by the steam injector from the bottom of the tank on to the top of the screen; the process is continued until complete solution is attained, after which the solution is transferred by the same injector to the 3,000-gal. storage tank.

The spraying vehicle is fitted with 20 spraying nozzles in four banks of five which can be operated either separately or simultaneously covering the width of 12 ft. The spraying vehicle is fitted with a speedometer, and the spraying which is also carried out by the same injector is regulated at a rate appropriate to the speed of travel. At each mixing, 33 cwt. of chlorate of soda and 11¼ cwt. of chloride of soda, sufficient to spray 20 miles of track, are used. It takes two hours to mix the 3,000 gal.

The plant is used mainly on branch lines; the main and secondary lines are weeded by the permanent way gangs. It is estimated that a total of over 50,000 gal. of weed-killing mixture is sprayed each season.

Staff & Labour Matters

Railway Wage Claim

After a further frank and amicable discussion on September 21 of the three railway unions claim for a 10 per cent. wage increase, the Railway Staff National Council agreed that the claims should be referred to the Railway Staff National Tribunal, the next stage in the negotiating machinery. At the meeting of the Council all parties agreed that everything possible should be done to expedite the hearing, which will be held as soon as practicable, and that it should be in public.

The Chairman of the Railway Staff National Tribunal is Sir John Forster, K.C., who was Chairman of the Board of Conciliation appointed by the Minister of Labour & National Service in 1949 to consider conditions of service and wage rates of railwaymen. The other two members are nominated by the Railway Executive and the unions respectively from previously selected panels. Either side may appoint assessors, in equal numbers, whose function is the elucidation of facts.

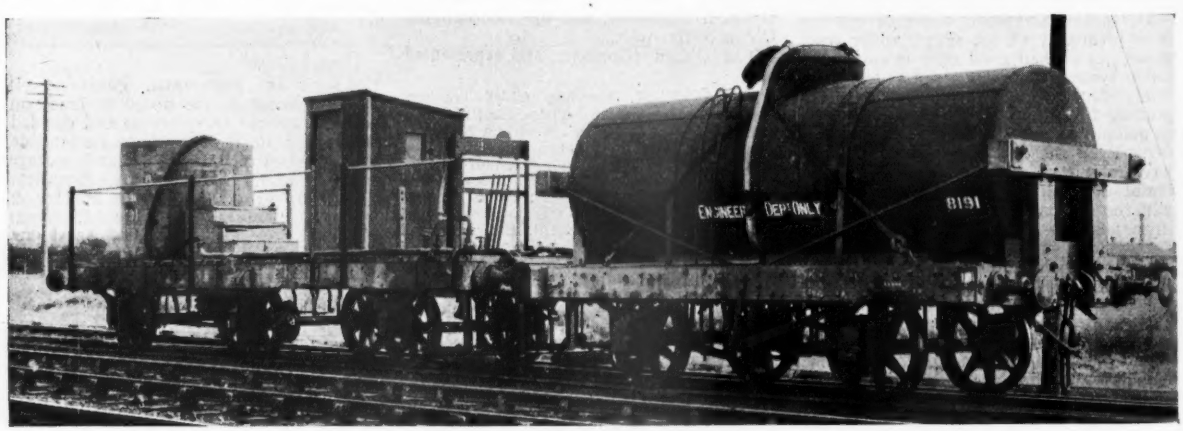
Railway Shopmen's Claim

A meeting of the Railway Shopmen's National Council was held on September 25 to discuss the claim submitted on behalf of railway shopmen for a substantial wage increase; the claim covers shopmen who are members of the N.U.R. or of unions affiliated to the C.S.E.U., and follows the proposal of the engineering workers to ask for an increase of £1 a week. Commenting on the claim, the *Railway Review* of September 21 states: "The continued negotiations for the conciliation grades which have reached Railway Staff National Council level, will have a great bearing on any final settlement for shopmen."

Irish Seamen's Strike

The majority of the seamen on strike in Dublin voted on September 25 for acceptance of the Maritime Board proposals for settlement of the dispute; it was expected at the time of going to press that work would be resumed very shortly.

SCOTTISH REGION BRANCH LINE CLOSING.—As from October 1 the passenger train service is being withdrawn from the Aberfoyle branch line in the Scottish Region. Stations affected are Milton of Campsie, Lennoxtown, Campsie Glen, Strathblane, Blanefield, Dumgoyne, Killearn, Balfron, Buchlyvie, and Aberfoyle.



Weed-spraying plant constructed by the Great Northern Railway (Ireland) at Dundalk Works

Contracts & Tenders

The Northern Division of the National Coal Board has placed a contract with Hurst, Nelson & Co. Ltd., for 150 21-ton steel hopper bottom door wagons.

The Sudan Government has recently placed the following contracts:—

Gloucester Railway Carriage & Wagon Co. Ltd. : Twelve 57-ft. 6-in. bogie coach underframes, complete with wheels and axles.

North British Locomotive Co. Ltd. : Eight "150" class 4-8-2 locomotives.

The Dunlop Rubber Co. Ltd. has recently supplied Dunlopillo cushioning for three diesel-mechanical railcars and four trailers for the Jamaica Government Railway. The seating was supplied to D. Wickham & Co. Ltd. by Cox & Co. (Waterford) Ltd.

A contract for 26 sets of Dunlopillo cushioning has also been placed with the company for coaches being supplied to the East African Railways & Harbours, Kenya & Uganda Section, by the Metropolitan-Cammell Carriage & Wagon Co. Ltd.

The India Store Department, London, is inviting tenders for the supply of 30 metre-gauge and 63 broad-gauge locomotive boilers. Further details are given under Official Notices on page 363.

The Special Register Information Service of the Board of Trade, Commercial Relations & Exports Department, recently reported that the closing date of the call for tenders (No. 2224) issued by the Government of New South Wales for 200 locomotive tenders has been extended from 12 noon on September 26 to 12 noon on October 31.

A further report states that in connection with the call for tenders (No. 2228) issued by the Government of New South Wales for 2,750 steel underframes for 18 ft. railway wagons, the Agent-General for New South Wales has reported that the closing date has been extended from 12 noon on September 5 to 12 noon on October 10.

Both tenders were previously referred to in our August 10 issue.

A recent report given in the Special Register Information Service of the Board of Trade Commercial Relations & Exports Department states that the Departmento de Traccion & Maestranza of the Chilean State Railways has issued a call for tenders for the following:—

Material	Tender date
18 diesel railcars for the Arica-La Paz Railway, Trans-Andine Railway and Northern Network of the State Railways . .	November 5
Six trailer coaches for the above . . .	November 5
20 steam locomotives of Mountain type, for Zone 3 of the State Railways .	December 3
34 first-class coaches, saloons and dining cars for Zones 1, 2 and 3 of the State Railways . .	December 10
Three motor-coaches and nine trailer coaches for electric train sets for Zone 1 of the State Railways .	December 17
300 boxcars of 30 tons and 300 automatic discharging cars of 50 tons for the Southern Network of the State Railways . .	December 24
40 lorries ; 80 trailers ; 50 buses . . .	December 31
24 locomotives, diesel-electric, or diesel-hydro-mechanical, for the Southern and Northern Networks of the State Railways . . .	January 7, 1952
Machine tools of various types for the workshops of the State Railways .	January 4, 1952
12 railcars for branch lines of the State Railways .	January 21, 1952
Two electric locomotives for the Trans-Andine Railway, and one portable electric sub-station for Zone 1 of the State Railways	January 28, 1952

STATION GARDEN PRIZES NORTH EASTERN REGION.—For the second year Stocksfield has won the highest award for the best station garden in the North Eastern Region.

Derailment near Weedon, London Midland Region

Wreckage of the 8.20 a.m. Liverpool-Euston express south of Stowe Tunnel, near Weedon, after the derailment on September 21 (*see paragraph on page* 364)

Notes and News

Platelayer Foreman Required.—An experienced platelayer foreman is required for West Africa for one tour of 12 to 14 months. See Official Notices on page 363.

Crown Agents for the Colonies.—An assistant engineer, civil, is required for the London Office of the Crown Agents for the Colonies. See Official Notices on page 363.

British Transport Officers' Guild.—Applications are invited by the British Transport Officers' Guild for the post of Clerk to the Guild. See Official Notices on page 363.

Vacancies for Draughtsmen.—Draughtsmen, experienced in the design and detail of railway sidings and permanent way trackwork, are required by a railway engineering firm. See Official Notices on page 363.

Vacancy for a Works Manager or Production Superintendent.—A works manager or production superintendent is required by the Yorkshire Engine Co. Ltd. Experience of locomotive engineering is not essential but would be advantageous. See Official Notices on page 363.

Workshop Foreman Required.—A workshop foreman (fitter and erector), between 25 and 35 years of age, is required by the Government of the Gold Coast for the railway department, for one tour of 18 to 24 months with prospect of permanency. See Official Notices on page 363.

Best Kept Length, London Area, L.M.R.—Mr. J. Taylor Thompson, Civil Engineer, London Midland Region, recently presented a challenge cup to Mr. G. W. Allen, Inspector, for his prize-winning section of track at Leighton Buzzard. Cash prizes also were presented to five gangers and other men who had gained merit awards for various lengths of track. A uniform system of marking has been evolved by the L.M.R. by which marks are allotted on the basis of 100 for each of ten items with a perfection total of 1,000 for each length. Factors taken into consideration are quality of the top, accuracy of levels and super-elevation, fineness of alignment, security, and general neatness of length.

Barsi Light Railway Co. Ltd.—The directors of the Barsi Light Railway Co. Ltd. have decided to recommend at the annual general meeting on October 23 a final dividend on the ordinary stock in respect of the half-year to March 31 of 2 per cent. actual less income tax.

Customs Examinations Delaying Boat Trains.—Our correspondent Mr. Sefton D. Temkin points out that the reference to Amiens Street Station (in his letter in our September 21 issue) should have been to Westland Row Station (Dublin). "Baggage regulations" should have read "baggage registration."

South London Tram Replacement.—The fifth stage of the South London tram replacement scheme of the London Transport Executive will take place on the night of October 6-7. Seven more tram routes (56-84, 58, 60, 62, 66 and 7) served by 99 tramcars will be replaced by six new bus routes (some in extension of the tram routes), served by 109 buses.

British Railways Coal and Steel Carryings.—During the weekend to September 24, British Railways cleared 369,870 tons of coal from deep-mined pits and opencast sites, making a total of 3,210,860 tons for the week; this is the best weekend clearance since June. The latest figures for iron and steel show that 198,587 tons were conveyed during the week ended September 15 from the principal steelworks.

Barton Lubricants Plant Opened.—On September 25 the reconstructed lubricants plant of Shell-Mex and B.P. Limited at Barton, Trafford Park, Manchester, was formally opened by Sir Frederick West, who was welcomed by Mr. C. M. Vignoles, Managing Director. The plant lies on the Manchester Ship Canal, on which there is a jetty for tankers. From here 8 in. overhead pipe lines convey oil from ocean-going tankers or smaller craft from Stanlow refinery and other British refineries to the tank farm across the road from the main plant. The basic oils used in the manufacture of lubricants are pumped from the storage tanks to the factory area.

Mr. J. Taylor Thompson, Civil Engineer, London Midland Region, presenting a challenge cup to Inspector G. W. Allen for a prize-winning section of track at Leighton Buzzard

Harwich—Zeebrugge Train Ferry Service.—The new vessel *Norfolk Ferry*, which was described and illustrated in our July 27 issue, went into service on Tuesday on the Zeebrugge-Harwich train ferry service.

Vickers Limited Interim Dividend.—The directors of Vickers Limited announce that an interim dividend of 2½ per cent. actual, less income tax, on the ordinary stock in respect of 1951 will be paid on October 23.

C. C. Wakefield & Co. Ltd. Share Issue.—The results of an issue by C. C. Wakefield & Co. Ltd. of 227,500 ordinary 10s. shares at £2 10s. a share and £1,250,000 of 4¼ per cent. first mortgage debenture stock, 1961-81, at par, was that subscriptions were received for 96¼ per cent. of the shares, while the debenture stock issue was heavily over-subscribed.

Railway Benevolent Institution.—At a meeting of the board of the Railway Benevolent Institution on September 19 annuities were granted to eight widows and 12 members involving an additional liability of £350 11s. a year; 41 gratuities were also granted amounting to £377 to meet cases of immediate necessity. Grants made from the casualty fund in July and August were £444 9s. 6d. and £506.

Associated British Engineering Limited.—Mr. Alan P. Good, Managing Director of the Brush Electrical Engineering Co. Ltd., on September 19 announced that the whole of the issued ordinary capital of H. Widdop & Co. Ltd., diesel engine builders, had been acquired by Associated British Engineering Limited. Purchase was by an exchange of shares and the price was calculated at £200,000.

Dundalk, Newry & Greenore Railway.—The Dundalk Newry & Greenore Railway Company has given notice that it proposes, as from January 1, 1952, to discontinue its services in Northern Ireland. It is understood that services will also be closed on the Eire side of the Border, and that it is the intention of British Railways, which operate a cargo steamer service from Holyhead to Greenore, to withdraw its vessels from the same date. The proposed closure of the port and services has aroused considerable opposition, and representatives of public bodies, trade unions and traders from both sides of the Border passed a resolution of protest. It was also decided to send a deputation to the Minister for Industry & Commerce in Dublin and to seek an interview with the Northern Ireland Minister of Commerce.

Institution of Railway Signal Engineers.—The first meeting of the Institution of Railway Signal Engineers for the Session 1951-52 will be held on October 3, when Monsieur J. G. Walter, Chief Signal Engineer, French National Railways, will read a paper on "Modern Signalling on the French National Railways." This and other London meetings will be held at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2, at 5.30 for 6 p.m. The syllabus for the remainder of the session is as follows: November 7, "Dual Maintenance," an

OFFICIAL NOTICES

WORKS MANAGER or PRODUCTION SUPERINTENDENT is required by Yorkshire Engine Company Limited. The Company employs four hundred men and are builders of locomotives and general engineers. Experience of locomotive engineering is not essential but would be advantageous; ability to organise production and install modern methods is of the first importance. Pension scheme.—Apply in writing to the General Manager, YORKSHIRE ENGINE COMPANY LIMITED, Meadow Hall Works, Sheffield, 9.

DRAUGHTSMEN required. Pension scheme in operation.—Apply GLOUCESTER RAILWAY CARRIAGE & WAGON COMPANY, Gloucester.

JUNIOR TRAFFIC OFFICIALS with railway traffic apprenticeship experience. Age about 25, single, required for service on railways in Peru and Bolivia. Apply to the Secretary of the PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

DRAUGHTSMAN required with experience of railway rolling stock, by a firm situated in North Midlands. Salary in accordance with previous experience and qualifications.—Apply Box 203, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

PLATELAYER FOREMAN, expd., perm., rail work, pref., overseas, required immed., for 12/18 months tour W. Africa. Would consider ex Col. Perm. Way Inspector. Good salary, kit and leave, allowances, for right man.—Write PAULING & Co. LTD., 26, Victoria Street, S.W.1.

DRAUGHTSMEN experienced design and detail of Railway Sidings and Permanent Way Trackwork required by old-established Railway Engineering Company. Five-day week. Canteen. Pension scheme. Apply giving age and full details, training experience, and state present salary, to Box 217, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

TENDERS are invited for the supply of:—Group I—30 Metre Gauge Locomotive Boilers; Group II—63 Broad Gauge Locomotive Boilers of various types. Forms of tender can be obtained from the Director-General, INDIA STORE DEPARTMENT, 32/44 Edgware Road, London, W.2. at a fee, which is not returnable, of 10s. per group. Tenders are due to be delivered by 2 p.m. on Tuesday, October 30, 1951.

RAILWAY MAINTENANCE PROBLEMS. By H. A. Hull (late District Engineer, L.M.S.R.). Valuable information. With much sound advice upon the upkeep of permanent way. Cloth, 8½ in. by 5½ in., 82 pp. Diagrams. 5s. By post 5s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

CROWN AGENTS FOR THE COLONIES

WORKSHOP FOREMAN (FITTER AND ERECTOR) required by the Government of the Gold Coast for the Railway Department for one tour of 18-24 months with prospect of permanency. Salary according to qualifications and experience in a scale £762 rising to £816 a year (including overseas pay and temporary allowance). Outfit allowance £60. Free passages. Liberal leave on full salary. Candidates between 25 and 35 years must have served an appropriate apprenticeship in a railway workshop and have had at least three years' subsequent experience at their trade. They must be thoroughly conversant with all details of erection, repair, and maintenance of locomotives. Apply at once by letter, stating age, full names in block letters and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M.28629.B on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

CROWN AGENTS FOR THE COLONIES

ASSISTANT ENGINEER (CIVIL) required for the London Office. Salary scale £475 rising by annual increments of £25 to £750 a year. The £475 minimum is linked to entry age at 25 with the addition of £25 for each year above that age up to £600 a year and subtraction of £25 for each year below 25. Extra duty allowance of 8 per cent. of annual salary also payable at present. Engagement will be on unestablished terms with a prospect, after satisfactory service, and as vacancies occur, of appointment to the established and pensionable staff and promotion to a higher grade. Candidates must be Corporate Members of either the Institution of Civil Engineers or the Institution of Structural Engineers, or, if below the age of 26, have passed the Associate Membership examination of either of these Institutions or hold an exempting degree. They must be good draughtsmen and have had experience in a Civil Engineering, Railway, or Structural Firm's drawing office, and must be capable of preparing detailed design of bridges, and/or buildings in steel. Experience in reinforced concrete design would be an advantage and some experience in the field or on works is desirable. Duties will entail calculations, designs and specifications of steel and reinforced concrete structures, including bridges and buildings, also general civil engineering design work. Apply at once by letter, stating age, full names in block letters, and full particulars of qualifications and experience, and mentioning this paper to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M.27415.A on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

THE BRITISH TRANSPORT OFFICERS' GUILD

THE British Transport Officers' Guild invites applications for the post of Clerk to the Guild. Candidates for the position, which is a whole-time one, should possess (*a*) outstanding personality, initiative, versatility, and organising ability; (*b*) wide knowledge of the British transport industry; or (*c*) experience in an executive or administrative capacity in rail or road transport, and (*d*) negotiating abilities. Some legal knowledge would be an advantage. The successful candidate, who will be responsible to the Management Council of the Guild, will be required to initiate and conduct representations and negotiations on behalf of the Guild and its Members, to stimulate its membership, to publicise its activities and to conduct its general administration. A small permanent clerical staff is provided. A commencing salary of not less than £1,250 is envisaged and this may be greater in the case of an exceptionally well qualified candidate. The objects of the Guild are:—(*a*) To maintain and improve the status of its members; (*b*) to protect their rights and interests, individual and collective, including the provision of legal assistance where warranted; (*c*) to advance efficiency in the operation of the National Transport Service. Applications in strict confidence, containing full personal history and details of qualifications should be addressed to THE MASTER, BRITISH TRANSPORT OFFICERS' GUILD, Finsbury Court, Finsbury Pavement, London, E.C.2, within twenty-one days from the date of this advertisement.

EXPERIENCED Tracer required by London firm in Victoria Area for drawing work, tracing and general office duties. Write stating age and experience.—Box 215, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

A VACANCY exists on the staff of an old-established British firm of Engineers and Merchants in India for an Engineer Salesman with Locomotive or Railway experience. Candidates should be between the ages of 22 and 27. Initial agreement three years. Salary £1,200 plus Provident Fund, return passages, leave, certain allowances and good prospects.—Apply Box 210, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

---

informal discussion to be opened by Mr. H. O. Baldwin, Assistant Signal & Telecommunications Engineer, Scottish Region, British Railways; December 14, "Non-Token Methods of Single Line Working," by Mr A. N. McKillop, Siemens and General Electric Railway Signal Co. Ltd.; January 9, 1952, "Special signalling for Speed Restrictions," by Mr. W. Owen, London Transport Executive; February 6, "Modern Developments in Signalling & their Application on the Eastern Bengal Railway, Pakistan," by Mr. H. F. Dennison, Signal Engineer, Eastern Bengal Railway; March 5, "The Track Circuit," by Mr. D. G. Shipp, Westinghouse Brake & Signal Co. Ltd.; April 2, annual general meeting. There will also be a provincial meeting on November 21 at Hunts Bank, Manchester, at 6 for 6.30 p.m., when Mr. L. E. Thompson, Westinghouse Brake & Signal Co. Ltd., will read a paper on "Rectifiers in Railway Signalling Circuits."

Bolivia Railway Company.—The directors of the Bolivia Railway Company announce that the rentals of the lines of the railway for the half-year ended June 30 are sufficient to pay interest of 10s. per £20 bond on the 5 per cent. mortgage and collateral trust bonds.

Engineman's Petition to Minister of Transport.—The petition of Driver Trevor Curtis, regarding alleged inefficiency and deterioration in safety standards in the Western Region, which was lodged with the Minister of Transport, as recorded in our September 7 issue, has been returned to him at his own request. It is now to be presented to Mr. Percy Morris, M.P. for West Swansea, and President of the Transport Salaried Staffs' Association.

Lubricating Oil Additives.—Essential lubricating oil additives, formerly obtained from dollar sources, are now being produced by C. C. Wakefield & Co. Ltd. on a large scale at the new Castrol plant at Stanlow in Cheshire. These additives give modern lubricants their detergent and anti-oxidant and anti-corrosion properties.

Institute of Transport: Northern Ireland Section.—The Northern Ireland Section of the Institute of Transport commenced the 1951-52 session on September 20 by visiting the tobacco factory of Gallagher Limited in Belfast. After tea, which was provided by the firm, the Chairman of the Section, Mr. James W. Hutton, proposed a vote of thanks to the firm. All meetings during the current session will be held in the Ulster Transport Authority premises at 21, Linenhall Street, Belfast. The next meeting will be held on October 18, when a paper dealing with transport publicity will be presented by Mr. C. Grasemann, former Public Relations & Publicity Officer, Southern Region, British Railways.

Holiday Excursions from Glasgow.—Features of the excursion services arranged by the Scottish Region of British Railways for the Glasgow Autumn Holiday from September 22-24 included trips to the Lancashire coast for the illuminations at Blackpool and Morecambe. Dining car excursions were run to Fort William and Oban as well as day trips to Aberdeen and Edinburgh and Fife and Clyde resorts. Race meeting specials were laid on for Bogside and Hamilton, and on the three days the *Queen Mary II* sailed for Dunoon, Rothesay, and the Kyles of Bute.

Tube Investments Limited take over New Conveyor Co. Ltd.—A statement was made, on September 19, by Mr. Ivan A. R. Stedeford, Chairman of Tube Investments Limited, to the effect that an agreement had been reached for the acquisition of the New Conveyor Co. Ltd. The latter firm specialises in the production of all types of mechanical handling equipment and its activities have included complete installations for electrical power stations and gasworks and the full mechanisation of foundries and factories. The company has built up a large home and overseas business over a period of 60 years. Like all the subsidiaries of Tube Investments Limited the New Conveyor Co. Ltd. will continue to operate as a separate entity. Mr. W. R. Purnell, now Vice-Chairman and acting Chairman of the firm, will become Chairman in addition to continuing as Managing Director.

North Eastern Region Stations Closed.—On September 10 the North Eastern Region of British Railways withdrew passenger trains from the Dearne Valley line between Wakefield Kirkgate and Edlington. The stations affected are the unstaffed halts of Ryhill, Grimethorpe, Great Houghton, Goldthorpe & Thurnscoe, Har-